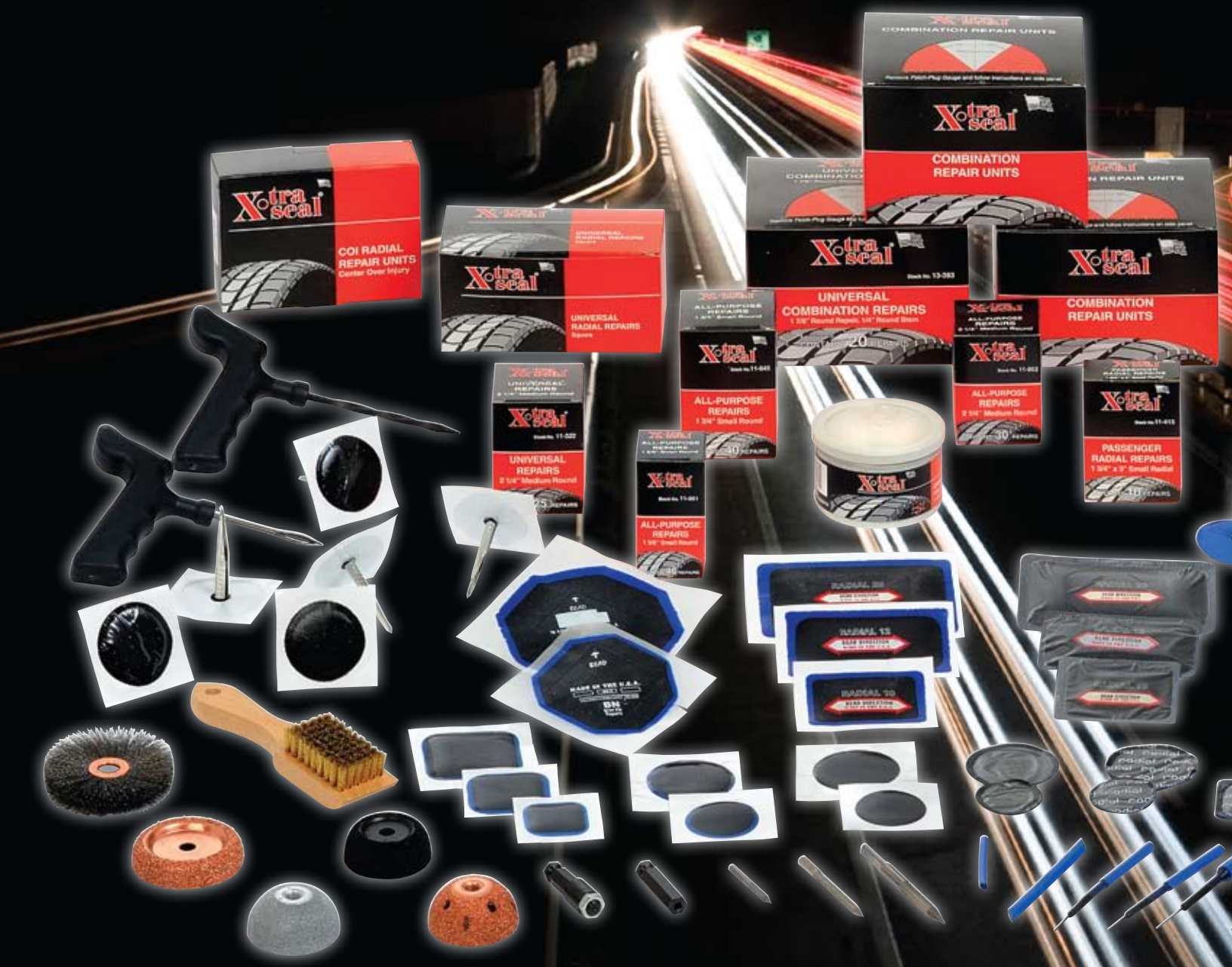
REPAIR & SUPPLIES

Keeping You On the Road

$5.00

Xtra seal®

THE TIRE SERVICE EXPERTS



Keeping You On The Road

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HISTORY

31 Incorporated was founded by Robert Cornell in 1956. In 1985, 31 Inc. was acquired by Chuck Muhs and Bob Hendry, two industry veterans with extensive backgrounds in the manufacturing and distribution of tire and wheel service products. Over the years, they have brought together an exceptional team of work associates and customers to become a well-known international leader in the automotive aftermarket. 31 Inc.'s primary manufacturing facility and International Headquarters is located in rural Newcomerstown, Ohio USA with a second manufacturing and distribution branch located in Shangyu City, Zhejiang Province, China.

QUALITY

31 Incorporated, an ISO certified company, is dedicated to manufacturing only the highest quality tire repair materials. From the raw material to the finished product, production is closely monitored at every stage to ensure all of our finished products meet or exceed rigorous quality standards.

TRAINING AND EDUCATION

31 Inc. is committed to training and educating industry personnel on the proper application of tire repair materials in accordance with industry repair procedures. We not only conduct on-site, hands-on training but also make available detailed repair videos, trilingual repair procedure booklets, and step-by-step application posters.

SALES SUPPORT

The 31 Inc. team has in-depth knowledge in every area of our industry. We are uniquely qualified to provide assistance regardless of what the challenge may be. *We are here to help you succeed.*

Xtra seal®

Quality Known Worldwide

TUBE REPAIR UNITS

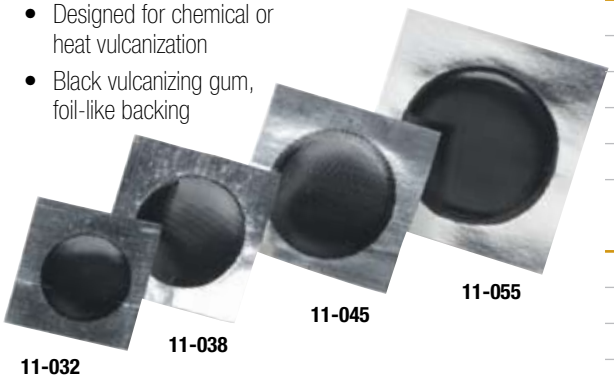
Tube repairs are non-reinforced and designed principally for use on inner tubes. These repair units are twice as strong as the tube being repaired and have a feather-edge design to prevent chaffing. When repairing inner tubes, buttonhole the ends of the injury and select a repair unit at least twice as large as the injury being repaired.

Feather-Edge Tube Repair Units

- Designed for chemical vulcanization
- Black vulcanizing gum, white poly backing
- Gray vulcanizing gum with blue poly also available. Use part number 11-001BG, 11-002BG, etc.

Foil-Back Tube Repair Units

- Designed for chemical or heat vulcanization
- Black vulcanizing gum, foil-like backing



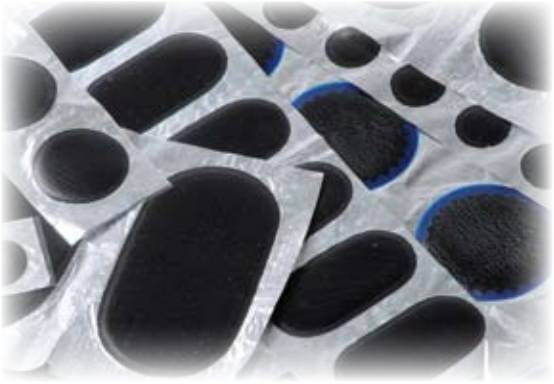
Euro-Style Tube Repair Units

- Designed for chemical or heat vulcanization
- Premium blue vulcanizing gum, white backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Feather-Edge Tube Repair Units					
11-000	Mini Round	1 1/4	32	100	12
11-001	Small Round	1 5/8	41	40	24
11-001 SB	in Small Bucket	1 5/8	41	400	1
11-001 LB	in Large Bucket	1 5/8	41	1000	1
11-002	Medium Round	2 1/4	57	30	24
11-002 SB	in Small Bucket	2 1/4	57	250	1
11-002 LB	in Large Bucket	2 1/4	57	500	1
11-003	Large Round	3 1/4	82	20	12
11-007	Giant Round	5	125	10	6
Oval					
11-004	Small Oval	1 3/8 x 2 3/8	35 x 60	30	12
11-005	Medium Oval	1 3/4 x 3 3/4	45 x 97	20	12
11-006	Large Oval	2 1/2 x 5 5/8	65 x 144	20	12
11-008	Giant Oval	3 3/4 x 6 1/8	95 x 155	10	6
Foil-Back Tube Repair Units					
11-032	Mini Round	1	26	80	12
11-038	X-tra Small Round	1 3/8	35	70	12
11-045	Small Round	1 5/8	42	50	12
11-055	Medium Round	2	52	40	12
11-079	Large Round	3	77	20	12
Euro-Style Tube Repairs					
11-632	Mini Round	1 1/4	30	100	12
11-638	X-tra Small Round	1 3/8	35	50	12
11-645	Small Round	1 5/8	42	40	12
11-655	Medium Round	2	52	30	12
11-679	Large Round	3	77	20	12
11-690	X-tra Large Round	3 1/2	90	10	12
11-6115	Giant Round	4 1/2	114	10	12
Oval					
11-672	Mini Oval	1 1/8 x 1 5/8	28 x 42	50	12
11-673	X-tra Small Oval	1 1/2 x 2 1/2	38 x 64	50	12
11-674	Small Oval	1 7/8 x 2 7/8	48 x 72	40	12
11-675	Medium Oval	2 1/8 x 4 1/2	55 x 115	30	12
11-676	Large Oval	2 3/8 x 5 3/4	60 x 145	20	12

Strip-Patch Tube Repairs

- Designed for chemical vulcanization
- Black vulcanizing gum, foil-like backing (Cord reinforced have blue vulcanizing gum)



Part Number	Description	Size (inches)	Size (mm)	Bag Qty	Case Qty
Strip-Patch Tube Repairs					
11-022	Tiny Round	7/8	21	400	12
11-031	Mini Round	1 1/8	30	200	10
11-040	X-tra Small Round	1 1/2	40	100	14
11-048	Small Round	1 7/8	48	100	15
11-057	Medium Round	2 1/8	55	100	10
11-065	Medium Large Round	2 3/8	61	50	14
11-074A	Large Round	2 3/4	70	50	12
11-105	X-tra Large Round	4	100	20	10
11-083	X-tra Small Oval	1 1/4 x 2 1/2	33 x 65	50	16
11-085	Small Oval	1 5/8 x 3	42 x 75	50	10
11-087	Medium Oval	2 1/8 x 4 1/8	55 x 105	20	14
11-089	Large Oval	3 1/8 x 6 1/8	80 x 155	20	14
Cord Reinforced					
11-640	Small Round	1 5/8	43	50	14
11-650	Medium Round	1 7/8	47	40	14
11-660	Medium Large Round	2 1/4	57	30	14

11-115

11-116

UNIVERSAL REPAIR UNITS

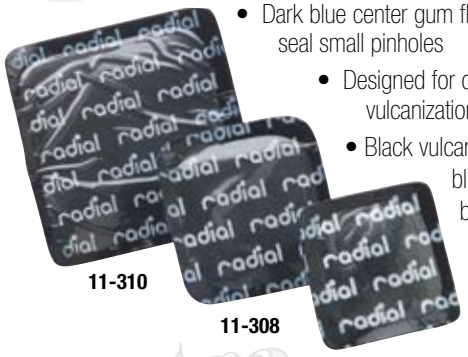
Universal repair units are rubber reinforced repairs that can be applied in any repairable area of a radial or bias ply tire. Refer to page 111 for repair limitations and follow industry recommended repair procedures on page 112.

Square Universal

- Perfect for nail hole repairs in passenger and light truck tires
- Designed for chemical vulcanization
- Gray vulcanizing gum, red or blue poly backing

Blue-Dot Center Flow Universal

- Dark blue center gum flows to seal small pinholes
- Designed for chemical vulcanization
- Black vulcanizing gum, blue poly backing



11-310

11-308

11-306

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Square Universal					
11-115	Small with Red Poly	1 7/8	47	30	24
11-115 SB	in Small Bucket	1 7/8	47	300	1
11-115 LB	in Large Bucket	1 7/8	47	600	1
11-115B	Small with Blue Poly	1 7/8	47	30	24
11-115B SB	in Small Bucket	1 7/8	47	300	1
11-115B LB	in Large Bucket	1 7/8	47	600	1
11-116	Medium with Red Poly	2 1/8	54	30	24
11-116 SB	in Small Bucket	2 1/8	54	200	1
11-116 LB	in Large Bucket	2 1/8	54	400	1
11-116B	Medium with Blue Poly	2 1/8	54	30	24
11-116B SB	in Small Bucket	2 1/8	54	200	1
11-116B LB	in Large Bucket	2 1/8	54	400	1
Blue-Dot Center Flow Universal					
11-306	Small Square	1 3/4	45	50	12
11-306 SB	in Small Bucket	1 3/4	45	250	1
11-306 LB	in Large Bucket	1 3/4	45	600	1
11-308	Medium Square	2 1/8	55	25	24
11-308 SB	in Small Bucket	2 1/8	55	200	1
11-308 LB	in Large Bucket	2 1/8	55	500	1
11-310	Large Square	3	75	15	24

Euro-Style Universal

- Extra thick yet flexible
- Heavy-duty nail hole repair
- Designed for chemical or heat vulcanization
- Premium blue vulcanizing gum, white backing

USA Style Universal

- *Our most popular universal repair*
- Designed for chemical vulcanization
- Black vulcanizing gum, blue poly backing

• One Piece Construction • Easy to Install •

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Euro-Style Universal					
11-307	Mini Square	1 1/2	38	50	12
11-307/30	Mini Square	1 1/2	38	30	12
11-309	Small Square	1 7/8	48	50	12
11-309/25	Small Square	1 7/8	48	25	12
11-309 SB	in Small Bucket	1 7/8	48	150	1
11-309 LB	in Large Bucket	1 7/8	48	350	1
11-311	Medium Square	2 1/4	57	50	12
11-311 SB	in Small Bucket	2 1/4	57	75	1
11-311 LB	in Large Bucket	2 1/4	57	200	1
11-312	Large Square	2 1/2	66	50	12
11-313	Small Oval	1 3/4 x 3	45 x 75	10	10
USA Style Universal					
11-321	Small Round	1 5/8	41	30	24
11-321 SB	in Small Bucket	1 5/8	41	300	1
11-321 LB	in Large Bucket	1 5/8	41	700	1
11-322	Medium Round	2 1/4	57	25	24
11-322 SB	in Small Bucket	2 1/4	57	200	1
11-322 LB	in Large Bucket	2 1/4	57	500	1
11-323	Large Round	3 1/4	82	15	24
11-324	Small Oval	1 3/8 x 2 3/8	37 x 61	25	12
11-325	Medium Oval	1 7/8 x 3 7/8	48 x 98	15	12
11-326	Xtra Large Round	4 1/4	110	10	12

PASSENGER RADIAL REPAIR UNITS

Passenger radial repairs are an inexpensive, yet very effective repair unit for passenger and light truck radial tires. Refer to page 111 for repair limitations and follow industry recommended repair procedures on page 112.

Unit Molded Passenger Radial Units

- Designed for chemical or heat vulcanization
- Flocking cord reinforced for strong flexible repair
- Black vulcanizing gum, white backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Unit Molded Passenger Radial Repair Units					
11-413	Small Oval	1 5/8 x 2 7/8	41 x 73	10	10
11-414	Medium Oval	2 1/8 x 3 7/8	55 x 98	10	10
11-415	Large Oval	2 5/8 x 5 3/8	67 x 137	10	10

RADIAL REPAIR UNITS

COI Radial Repairs are designed for use in puncture, reinforcement, and section repairs in any repairable area of a passenger, truck, agricultural, or earthmover radial tire. COI Radial Repairs are extremely strong yet very flexible.

Euro-Style COI Radial Repair Units

- Each reinforcing ply is specifically end-cut and wrapped to "float" inside the patch to prevent end cracking or breakout common in competitive products
- Designed to vulcanize chemically, in low temperature, or high heat curing systems
- Premium blue vulcanizing gum, white backing

AR Series: These repair units are reinforced with Aramid Cord.

- Stronger than steel (pound for pound) • Safer and easier to install than steel
- Easier to use in low profile tires • Lightweight – No balancing distortion
- Reduces sidewall bulging

U Series: These repair units are uncured for use in heat curing systems only.

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty	AR Series	U Series
Euro-Style COI Radial							
11-708	Radial 10, 1 Ply	1 3/4 x 2 7/8	45 x 73	20	10	11-AR708	—
11-710	Radial 10, 1 Ply	2 x 3	50 x 75	20	10	11-AR710	—
11-712	Radial 12, 1 Ply	2 1/4 x 4	57 x 102	10	10	11-AR712	—
11-712A	Radial 12, 1 Ply	2 3/4 x 4 5/8	70 x 118	10	10	11-AR712A	—
11-714	Radial 14, 1 Ply	3 3/8 x 4	87 x 100	10	10	11-AR714	—
11-720	Radial 20, 2 Ply	2 3/4 x 5	70 x 125	10	6	11-AR720	—
11-722	Radial 22, 2 Ply	3 x 6	76 x 150	10	6	11-AR722	—
11-724	Radial 24, 2 Ply	2 7/8 x 8 1/2	73 x 215	10	6	11-AR724	11-724U
11-725	Radial 25, 3 Ply	4 1/2 x 5	115 x 125	10	1	11-AR725	—
11-726	Radial 26, 3 Ply	3 x 10 3/8	75 x 265	10	1	11-AR726	11-726U
11-728	Radial 28, 3 Ply	3 x 12 3/4	76 x 325	10	1	11-AR728	11-728U
11-735	Radial 35, 3 Ply	5 x 7 1/8	128 x 181	10	1	11-AR735	11-735U
11-740	Radial 40, 3 Ply	3 7/8 x 7 3/8	98 x 187	10	6	11-AR740	11-740U
11-742	Radial 42, 4 Ply	4 7/8 x 9 7/8	123 x 250	10	1	11-AR742	11-742U
11-744	Radial 44, 4 Ply	4 3/4 x 13	121 x 330	10	1	11-AR744	11-744U
11-745	Radial 45, 4 Ply	7 1/2 x 9	191 x 230	5	1	11-AR745	11-745U

See page 10 for COI Radial Application Chart

NOTE: Injury MUST be within repairable limits. Refer to page 111 and 112 for repair limitations

USA Style COI Radial Repair Units

- Each reinforcing ply is individually end-wrapped to deflect tire flexing stresses in a unique manner
- Tie-gum construction eliminates the potential for delamination common in competitive products
- Designed to vulcanize chemically or in low temperature systems
- Gray vulcanizing gum, blue poly backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
USA Style COI Radial					
11-808	Radial 10, 1 Ply	1 5/8 x 3	42 x 75	20	10
11-810	Radial 10, 1 Ply	2 3/8 x 3	60 x 75	20	10
11-812	Radial 12, 1 Ply	2 1/4 x 4	57 x 100	10	10
11-813	Radial 12, 1 Ply	2 3/4 x 4	70 x 100	10	10
11-814	Radial 14, 1 Ply	3 3/4 x 4	95 x 100	10	10
11-820	Radial 20, 2 Ply	2 7/8 x 5	72 x 125	10	6
11-822	Radial 22, 2 Ply	3 x 6	75 x 150	10	6
11-824	Radial 24, 2 Ply	3 x 8 1/2	75 x 215	10	6
11-825	Radial 25, 3 Ply	4 1/2 x 5	115 x 125	10	1
11-826	Radial 26, 3 Ply	3 x 11	76 x 278	10	1
11-828	Radial 28, 3 Ply	3 x 14	76 x 355	10	1
11-835	Radial 35, 3 Ply	5 1/4 x 7	133 x 180	10	1
11-840	Radial 40, 3 Ply	4 x 7 3/8	100 x 188	10	6
11-842	Radial 42, 4 Ply	5 x 10	125 x 254	10	1
11-844	Radial 44, 4 Ply	5 x 13	125 x 330	10	1
11-845	Radial 45, 4 Ply	7 1/2 x 9 1/2	190 x 240	5	1

R Series:

(Part numbers 11-824R, 11-826R, 11-840R, etc.)

These repair units are designed to be used in high heat (mold cure) systems.

CURING INFORMATION FOR R SERIES
Heat Chamber:
240°F (116°C) for 72 min., 270°F - 320°F (132°C - 160°C) for 30 min.
Spotter: 270°F - 320°F (132°C - 160°C), 10 min. per 1/8" (3mm)

A Series:

(Part numbers 11-824A, 11-826A, 11-840A, etc.)

These repair units have no face gum (ply package only) on black Holland cloth.

NOTE:
Injury MUST be within repairable limits. Refer to page 111 and 112 for repair limitations

See page 10 for COI Radial Application Chart

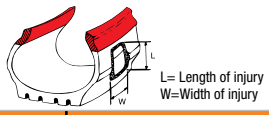
Heavy Duty Radial Ply Package

- Heavy duty Aramid cord construction
- Designed for heat vulcanization
- Ply package only with black cloth backing

Heavy Duty Radial Ply Package			
11-820AJL	Radial 20, 2 Ply	2 1/2 x 4 3/8	62 x 112
11-822AJL	Radial 22, 2 Ply	2 3/4 x 5 5/8	70 x 144
11-824AJL	Radial 24, 2 Ply	2 1/2 x 8	65 x 205
11-826AJL	Radial 26, 2 Ply	2 1/2 x 9 7/8	65 x 250
11-840AJL	Radial 40, 2 Ply	3 5/8 x 7	93 x 180
11-844AJL	Radial 44, 3 Ply	4 3/4 x 12 3/8	120 x 314
11-848AJL	4 Ply	3 1/8 x 9 3/4	80 x 248
11-849AJL	4 Ply	3 1/8 x 11 3/4	80 x 298
11-850AJL	4 Ply	3 1/8 x 13 3/4	80 x 350

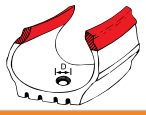
COI RADIAL APPLICATION CHART

SIDEWALL INJURY



L= Length of injury
W=Width of injury

TREAD INJURY



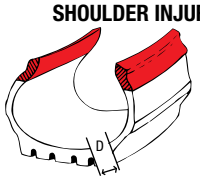
PASSENGER

LIGHT TRUCK

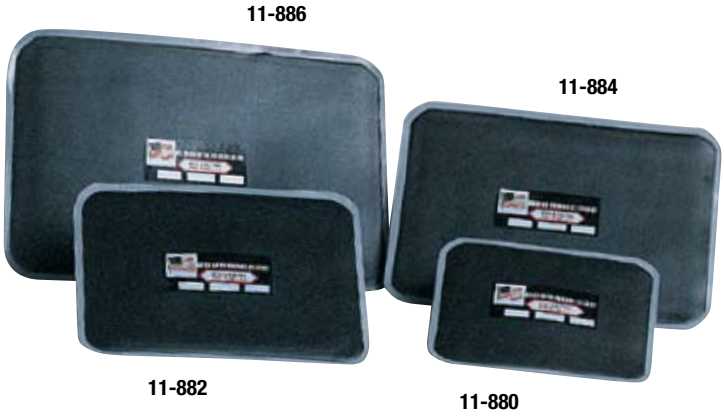
HEAVY TRUCK

EARTHMOVER

Maximum Width	Maximum Length	Maximum Diameter	125 - 195	205 - 255	6.50 - 12.50 7 - 10 215/85 - 255/85 215/75 - 265/75	7.50 - 10.00 8 - 11 235/80 - 275/80 245/75 - 295/75	11.00 - 14.00 12 - 16.5 295/80 - 315/80 315/75 - 425/65	14.00 - 40.00 15.5 - 50.5 20/65 - 65/65
		1/8" (3mm)	10	10	10	10	10	44
1/8"(3mm)	1/8" (3mm)		10	10	10	10	10	42
		1/4" (6mm)	10	10	12	12	12	44
	1/4" (6mm)		10	10	12	12	12	42
1/4"(6mm)	1/2" (12mm)				20	42	40	42
	2" (50mm)		12	12	22			
	1 1/2" (40mm)				20	20	20	
1 cable	3 1/8" (80mm)				22	22	22	
	4 3/4" (120mm)					24	24	
	6" (150mm)					26	26	
	3/4" (19mm)				20	20	22	
2 cables	1 1/2" (40mm)					22	24	
	2 3/8" (60mm)				22	24	26	
	5 1/8" (130mm)					26	28	
		3/8" (10mm)	10	10	20	20	20	44
	3/8" (10mm)		10	10	20	20	20	
	1 1/2" (40mm)		12	12		26	40	42
3/8" (10mm)	2" (50mm)		14	14	22			
	2 3/8" (60mm)							
	3 1/8" (80mm)				42		42	
	5 1/8" (130mm)						44	
		1/2" (12mm)	12	12	22	25	25	44
	1 1/2" (40mm)		12	12			40	
	2" (50mm)		14	14	22	40		44
1/2" (12mm)	2 3/4" (70mm)						42	
	3 3/4" (95mm)				40	42		
	5 1/8" (130mm)					44	44	
		3/4" (19mm)	12	12	22	25	35	44
	3/4" (20mm)			12	22		40	
	1" (25mm)		12			40		44
	1 1/2" (40mm)			14				
3/4" (19mm)	2" (50mm)		14		24		42	
	2 1/2" (65mm)							
	4 3/8" (110mm)					42	44	
	5 1/8" (130mm)					44		
		1" (25mm)	14	14	25	35	35	44
	1 1/2" (40mm)		14	14	40	42	44	
	2" (50mm)			22				
1" (25mm)	3 1/8" (80mm)							
	4" (100mm)					44		
		1 1/4" (30mm)				35	35	
	2" (50mm)					42	44	
1 1/4" (30mm)	3 1/8" (80mm)					44		
	4" (100mm)							
		1 1/2" (40mm)				45	45	
	2" (50mm)					44	44	
1 1/2" (40mm)	3 1/8" (80mm)							
SHOULDER INJURY		1/4" (6mm)	10	10	12	20	20	42
		3/8" (10mm)	12	12	20		22	
		1/2" (12mm)				22	40	44
		3/4" (19mm)		14	22			
		1" (25mm)			40	42	42	
		1 1/2" (40mm)				44	44	



D = Diameter of injury



Euro-Style COI Radial Agricultural Repair Units

- Each reinforcing ply is specifically end-cut and wrapped to "float" inside the patch to prevent end cracking or breakout common in competitive products
- Designed to vulcanize chemically, in low temperature, or high heat curing systems
- Premium blue vulcanizing gum, white backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Euro-Style COI Radial Agricultural Repair Units					
11-780	Radial 80, 2 Ply	5 7/8 x 7 3/4	150 x 197	5	1
11-782	Radial 82, 3 Ply	7 3/8 x 10	188 x 254	5	1
11-784	Radial 84, 3 Ply	8 3/8 x 11 3/8	213 x 290	5	1
11-786	Radial 86, 3 Ply	9 5/8 x 13 3/8	245 x 340	5	1

USA Style COI Radial Agricultural Repair Units

- Each reinforcing ply is individually end-wrapped to deflect tire flexing stresses in a unique manner
- Tie-gum construction eliminates the potential for delamination common in competitive products
- Designed to vulcanize chemically or in low temperature systems
- Gray vulcanizing gum, blue poly backing

USA Style COI Radial Agricultural Repair Units					
11-880	Radial 80, 2 Ply	5 7/8 x 7 3/4	150 x 197	5	1
11-882	Radial 82, 3 Ply	7 1/2 x 10	190 x 254	5	1
11-884	Radial 84, 3 Ply	8 1/2 x 11 1/2	216 x 292	5	1
11-886	Radial 86, 3 Ply	9 3/4 x 13 3/8	248 x 340	5	1

COI RADIAL AGRICULTURAL APPLICATION CHART

SIDEWALL INJURY Maximum Width	SIDEWALL INJURY Maximum Length	TREAD INJURY Maximum Diameter	AGRICULTURAL 8 - 11 (8.3 - 12.4)	AGRICULTURAL 12 - 15 (13.6 - 30.5)
1/4" (6mm)	1/4" (6mm)		12	12
3/8" (10mm)	3/8" (10mm)	3/8" (10mm)		
	1 1/2" (40mm)		20	20
3/4" (19mm)	3/4" (19mm)	3/4" (19mm)		
	3" (75mm)		22	80
1 1/2" (40mm)	4" (100mm)	1 1/2" (40mm)	80	82
2" (50mm)	3 1/4" (80mm)			
2 1/2" (65mm)	3" (75mm)			
	4" (100mm)			
2 3/4" (70mm)	2 3/4" (70mm)	2 3/4" (70mm)	80	
3 1/4" (80mm)	3 1/4" (80mm)			
	5 1/4" (130mm)			84
3 1/2" (90mm)	4 1/2" (115mm)	3 1/2" (90mm)		
4" (100mm)	4" (100mm)			
	6 1/2" (165mm)			86
5 1/4" (130mm)	5 1/4" (130mm)	5 1/4" (130mm)		

When installing repair units in agricultural tires that will contain calcium, coat the entire repair unit with 14-128A Inner Liner Sealer after installation

NOTE: Injury MUST be within repairable limits. Refer to page 111 and 112 for repair limitations

USING THIS CHART

1) Measure the injury being repaired across the largest area of broken or removed cord. If injury is in the sidewall, measure width (across the cords) and length (along the cords). If injury is in the tread or shoulder area, measure the diameter of the injury.
2) Locate these measurements under the appropriate injury column. If actual injury size is between measurements on the chart, go up to the next largest measurement.
3) When you locate the correct injury size on the chart, go to the appropriate tire size column. Where the injury size row and the tire size column intersect is the correct COI Radial repair unit to use.

BIAS PLY REPAIR UNITS

Bias ply repair units are designed for use in nailhole, reinforcing, or section repairs and can be applied in any repairable area of a tube or tubeless bias ply tire.

CP Cross Ply Bias / CPT Cross Ply Bias Agricultural

- Each reinforcing ply is protected and encased in a molded ply package making each unit strong while remaining flexible
- Designed to vulcanize chemically or in low temperature systems
- Gray vulcanizing gum, blue poly backing

CP repair units are also available for high heat (mold cure) systems. Request part number 11-453R, 11-454R, 11-455R, etc.

CPT repair units are also available for high heat (mold cure) systems. Request part number 11-460R, 11-461R, 11-462R, etc.

BN Bias Ply / BNT Bias Ply Agricultural

- Each reinforcing ply is protected and encased in a molded ply package making each unit strong while remaining flexible
- Fine feather edge eliminates chaffing
- Designed to vulcanize chemically, in low temperature, or high heat curing systems
- Premium blue vulcanizing gum, white backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
CP Bias Ply					
11-386	CP0, 1 Ply	2 1/8	55	20	12
11-387	CP1, 1 Ply	3	77	10	12
11-388	CP2, 2 Ply	3 5/8	92	10	12
11-453	CP3, 2 Ply	4 3/8	112	10	10
11-454	CP4, 4 Ply	5 1/2	140	10	10
11-455	CP5, 4 Ply	6 3/4	172	10	10
11-456	CP6, 6 Ply	9 5/8	250	5	6
11-457	CP7, 6 Ply	11 3/8	290	5	6
11-458	CP8, 6 Ply	13 3/8	341	5	6
11-459	CP9, 8 Ply	15	380	3	6
11-4510	CP10, 8 Ply	16 1/4	415	3	1
CPT Bias Ply Agricultural					
11-460	CPT0, 4 Ply	8 1/8	207	10	6
11-461	CPT1, 4 Ply	9 1/4	234	5	6
11-462	CPT2, 4 Ply	11 5/8	295	5	6
11-463	CPT3, 4 Ply	15	380	5	1
11-464	CPT4, 6 Ply	9 1/4	235	5	6
11-465	CPT5, 6 Ply	11 5/8	295	5	6
11-466	CPT6, 6 Ply	15	381	5	1
11-467	CPT7, 6 Ply	19 1/2	495	3	1
BN Bias Ply					
11-488	BN1, 1 Ply	2 1/8	55	30	12
11-489	BN2, 2 Ply	3	75	20	12
11-490	BN3, 2 Ply	3 1/2	89	20	10
11-491	BN4, 2 Ply	4 1/4	110	10	10
11-492	BN5, 2 Ply	5 1/4	135	10	10
11-493	BN7, 3 Ply	6 1/2	165	10	10
11-494	BN8, 3 Ply	7 1/2	190	10	10
11-495	BN9, 4 Ply	8 5/8	220	10	5
11-496	BN10, 6 Ply	9 7/8	250	5	5
11-497	BN12, 6 Ply	12	305	5	5
11-498	BN15, 8 Ply	15	380	3	6
11-499	BN20, 8 Ply	20	508	3	1
BNT Bias Ply Agricultural					
11-480	BNT20, 4 Ply	9 7/8	250	10	5
11-481	BNT21, 4 Ply	14 1/2	370	5	6
11-482	BNT22, 4 Ply	20	508	3	1
11-483	BNT23, 6 Ply	9 7/8	250	10	5
11-484	BNT24, 6 Ply	14 1/2	370	5	6
11-485	BNT25, 6 Ply	20	508	3	1

BIAS PLY REPAIR APPLICATION CHART

PLY RATING	INJURY SIZE																
	3mm 1/8"	6mm 1/4"	10mm 3/8"	15mm 1/2"	20mm 3/4"	25mm 1"	40mm 1 1/2"	50mm 2"	65mm 2 1/2"	75mm 3"	100mm 4"	125mm 5"	150mm 6"	175mm 7"	200mm 8"	225mm 9"	250mm 10"
PASSENGER, TRUCK, & EARTHMOVER																	
4	CP0 BN1	CP0 BN1	CP1 BN2	CP2 BN3	CP3 BN4	CP3 BN4	CP4 BN4	CP5 BN7	CP6 BN9								
6	CP0 BN1	CP0 BN2	CP1 BN3	CP2 BN4	CP3 BN5	CP3 BN5	CP4 BN8	CP5 BN9	CP6 BN10								
8	CP0 BN1	CP0 BN2	CP2 BN3	CP3 BN4	CP3 BN5	CP4 BN5	CP4 BN8	CP5 BN9	CP6 BN10								
10	CP0 BN1	CP1 BN3	CP2 BN4	CP3 BN5	CP3 BN7	CP4 BN9	CP5 BN9	CP6 BN10	CP6 BN10	CP7 BN12	CP8 BN12						
12	CP0 BN1	CP1 BN3	CP2 BN4	CP4 BN5	CP4 BN7	CP4 BN9	CP5 BN9	CP6 BN10	CP6 BN10	CP7 BN12	CP8 BN12						
14	CP0 BN1	CP1 BN3	CP3 BN4	CP4 BN5	CP4 BN8	CP5 BN10	CP6 BN10	CP6 BN12	CP7 BN12	CP7 BN12	CP8 BN15	CP10 BN20					
16	CP0 BN1	CP1 BN3	CP4 BN4	CP4 BN5	CP5 BN8	CP5 BN10	CP6 BN10	CP6 BN12	CP7 BN12	CP7 BN12	CP8 BN15	CP10 BN20					
18	CP0 BN2	CP1 BN3	CP4 BN5	CP5 BN7	CP5 BN9	CP6 BN10	CP6 BN12	CP7 BN15	CP8 BN15	CP8 BN15	CP9 BN15	CP10 BN20					
20	CP0 BN2	CP1 BN3	CP4 BN5	CP5 BN7	CP5 BN9	CP6 BN10	CP7 BN12	CP8 BN15	CP8 BN15	CP9 BN15	CP9 BN15	CP10 BN20					
22	CP0 BN2	CP1 BN3	CP4 BN5	CP6 BN8	CP6 BN10	CP7 BN10	CP8 BN12	CP8 BN15	CP8 BN15	CP9 BN15	CP10 BN20						
24	CP0 BN2	CP1 BN3	CP4 BN5	CP6 BN8	CP6 BN10	CP7 BN10	CP8 BN12	CP8 BN15	CP8 BN15	CP9 BN15	CP10 BN20						
FARM, TRACTOR, SKIDDER																	
4	CP0 BN3	CP0 BN4	CP1 BN4	CP2 BN5	CP3 BN7	CP3 BN8	CP4 BN8	CP5 BN9	CPT0 BN9	CPT0 BNT20	CPT1 BNT20	CPT2 BNT21	CPT2 BNT21	CPT3 BNT21	CPT3 BNT22		
6	CP0 BN3	CP0 BN4	CP1 BN4	CP2 BN5	CP3 BN7	CP3 BN8	CP4 BN8	CP5 BN9	CPT0 BN9	CPT0 BNT20	CPT1 BNT20	CPT2 BNT21	CPT2 BNT21	CPT3 BNT22	CPT3 BNT22		
8	CP0 BN3	CP1 BN4	CP2 BN5	CP2 BN7	CP3 BN8	CP4 BN8	CP4 BN9	CP5 BN9	CPT0 BNT20	CPT0 BNT20	CPT1 BNT20	CPT2 BNT21	CPT2 BNT21	CPT3 BNT22	CPT3 BNT25	CPT6 BNT25	CPT7 BNT25
10	CP0 BN3	CP1 BN4	CP2 BN5	CP3 BN7	CP3 BN8	CP4 BN8	CP5 BN9	CP6 BN9	CPT1 BNT20	CPT1 BNT20	CPT4 BNT23	CPT5 BNT24	CPT5 BNT24	CPT6 BNT25	CPT6 BNT25	CPT7 BNT25	CPT7 BNT25
12	CP0 BN3	CP1 BN4	CP2 BN5	CP4 BN7	CP4 BN8	CP4 BN8	CP5 BN9	CP6 BN9	CPT4 BNT23	CPT4 BNT23	CPT4 BNT23	CPT5 BNT24	CPT5 BNT24	CPT6 BNT25	CPT7 BNT25	CPT7 BNT25	CPT7 BNT25
14	CP0 BN4	CP1 BN5	CP4 BN7	CP4 BN8	CP4 BN8	CP5 BN9	CP6 BN10	CP6 BN10	CPT4 BNT23	CPT5 BNT24	CPT5 BNT24	CPT5 BNT24	CPT6 BNT24	CPT7 BNT25	CPT7 BNT25	CPT7 BNT25	
16	CP0 BN4	CP1 BN5	CP4 BN7	CP4 BN8	CP5 BN8	CP5 BN9	CP6 BN10	CP6 BNT23	CPT5 BNT24	CPT5 BNT24	CPT5 BNT24	CPT6 BNT24	CPT6 BNT25	CPT7 BNT25	CPT7 BNT25		
18	CP0 BN5	CP1 BN7	CP4 BN8	CP5 BN9	CP5 BN9	CP6 BN10	CPT2 BNT23	CPT3 BNT24	CPT5 BNT24	CPT6 BNT24	CPT6 BNT24	CPT6 BNT25	CPT6 BNT25	CPT7 BNT25	CPT7 BNT25		
REINFORCEMENT REPAIRS																	
8-12	CP0 BN1 AG3	CP0 BN2 AG3	CP1 BN3 AG3	CP2 BN3 AG3	CP3 BN4 AG4	CP3 BN4 AG5	CP4 BN5 AG5	CP4 BN8 AG7	CP5 BN9 AG8	CP6 BN10 AG10	CP7 BN12 AG12	CP8 BN15 AG15					
14-18	CP0 BN1 AG3	CP0 BN3 AG3	CP1 BN4 AG4	CP2 BN4 AG4	CP4 BN5 AG5	CP4 BN5 AG6	CP5 BN7 AG6	CP5 BN9 AG8	CP6 BN10 AG10	CP6 BN10 AG10	CP7 BN12 AG12	CP8 BN15 AG18					
20-24	CP0 BN2 AG3	CP0 BN3 AG3	CP2 BN4 AG4	CP4 BN5 AG5	CP5 BN7 AG6	CP5 BN8 AG7	CP6 BN9 AG7	CP6 BN10 AG10	CP7 BN12 AG12	CP7 BN12 AG12	CP8 BN15 AG15	CP9 BN15 AG18					

NOTE:
Injury MUST be within repairable limits. Refer to page 111 and 112 for repair limitations

USING THIS CHART:

1. Use the appropriate section of this chart for the repair being performed.
2. Note the ply rating of the tire being repaired and locate this in the left hand column of appropriate section.
3. Measure the injury being repaired across the largest area of broken or removed cord.Locate this injury size, or next largest size listed, along the top row.
4. Use the specified repair unit where the column and row intersect.

AG Bias Ply

- Designed primarily for use in agricultural bias ply tube or tubeless tires
- Designed for chemical vulcanization
- Black vulcanizing gum, blue poly backing

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
AG Bias Ply					
11-470	AG3, 2 Ply	3 1/2	90	20	10
11-471	AG4, 2 Ply	4 1/2	115	10	10
11-472	AG5, 2 Ply	5 1/2	140	10	10
11-473	AG6, 3 Ply	6 1/2	165	10	10
11-474	AG7, 4 Ply	7 1/2	190	10	10
11-475	AG8, 4 Ply	8 1/2	215	10	5
11-476	AG10, 6 Ply	10 1/2	265	5	5
11-477	AG12, 6 Ply	12 1/2	317	5	5
11-478	AG15, 8 Ply	15 1/2	394	1	1
11-479	AG18, 8 Ply	18 1/2	470	1	1

Chop Cord Emergency Boots					
11-503	Round Boot	3	76	50	
11-507	Round Boot	4 1/2	115	50	
11-509	Oval Boot	4 x 5	100 x 130	25	
11-511	Oval Boot	5 1/2 x 8	140 x 203	25	
11-513	Oval Boot	7 x 10	180 x 255	25	
11-515	Oval Boot	9 x 12	230 x 305	10	
11-517	Oval Boot	10 x 14	255 x 350	10	

Chop Cord Emergency Boots

- Designed primarily for use in agricultural tires
- Flocking cord reinforced for a strong yet flexible repair
- Designed for chemical vulcanization
- Black vulcanizing gum, white poly backing

Giant OTR Bias Ply Repair Units

- Each reinforcing ply is protected and encased in a molded ply package making each unit strong while remaining flexible
- Designed for chemical or heat vulcanization (if heat curing, apply floater gum)
- Black vulcanizing gum, white backing

Giant OTR Bias Ply Repair Units, Uncured

- Heavy duty construction with floater gum
- Designed for heat vulcanization
- Uncured repair unit with green poly backing

Part Number	Plies	Size (inches)	Size (mm)	Box Qty
Giant OTR Bias Ply Repair Units				
11-950	4-Ply	5 x 5	127 x 127	12
11-951	4-Ply	7 x 7	178 x 178	12
11-952	6-Ply	9 x 9	229 x 229	12
11-953	6-Ply	11 x 11	279 x 279	12
11-954	7-Ply	13 x 13	330 x 330	12
11-955	8-Ply	15 x 15	381 x 381	6
11-956	8-Ply	17 x 17	432 x 432	6
11-957	10-Ply	19 x 19	483 x 483	3
11-958	12-Ply	21 x 21	533 x 533	3
11-959	12-Ply	23 x 23	584 x 584	3
11-9510	14-Ply	25 x 25	635 x 635	3

Part Number	Plies	Size (inches)	Size (mm)	Box Qty
Giant OTR Bias Ply Repair Units, Uncured				
11-950U	4-Ply	4 x 4	102 x 102	12
11-951U	4-Ply	6 x 6	152 x 152	12
11-952U	6-Ply	8 x 8	203 x 203	12
11-953U	6-Ply	10 x 10	254 x 254	12
11-954U	7-Ply	12 x 12	305 x 305	12
11-955U	8-Ply	14 x 14	356 x 356	6
11-956U	8-Ply	16 x 16	406 x 406	6
11-957U	10-Ply	18 x 18	457 x 457	3
11-958U	12-Ply	20 x 20	508 x 508	3
11-959U	12-Ply	22 x 22	559 x 559	3
11-9510U	14-Ply	24 x 24	610 x 610	3

Giant OTR Bias Ply Repair Units, Aramid Reinforced, Semi Cured

- Reinforced with Aramid Cord for added strength
- Designed for heat vulcanization
- Semi-cured repair unit

Part Number	Size (inches)	Size (mm)	Box Qty
Giant OTR Bias Ply Repair Units, Aramid Reinforced			
11-950KSC	4 x 4	102 x 102	12
11-951KSC	6 x 6	152 x 152	12
11-952KSC	8 x 8	203 x 203	12
11-953KSC	10 x 10	254 x 254	12
11-954KSC	12 x 12	305 x 305	12
11-955KSC	14 x 14	356 x 356	6
11-956KSC	16 x 16	406 x 406	6
11-957KSC	18 x 18	457 x 457	3
11-95206KSC	20 x 6	508 x 152	3
11-95227KSC	22 x 7	559 x 178	3
11-95238KSC	23 x 8	584 x 203	3

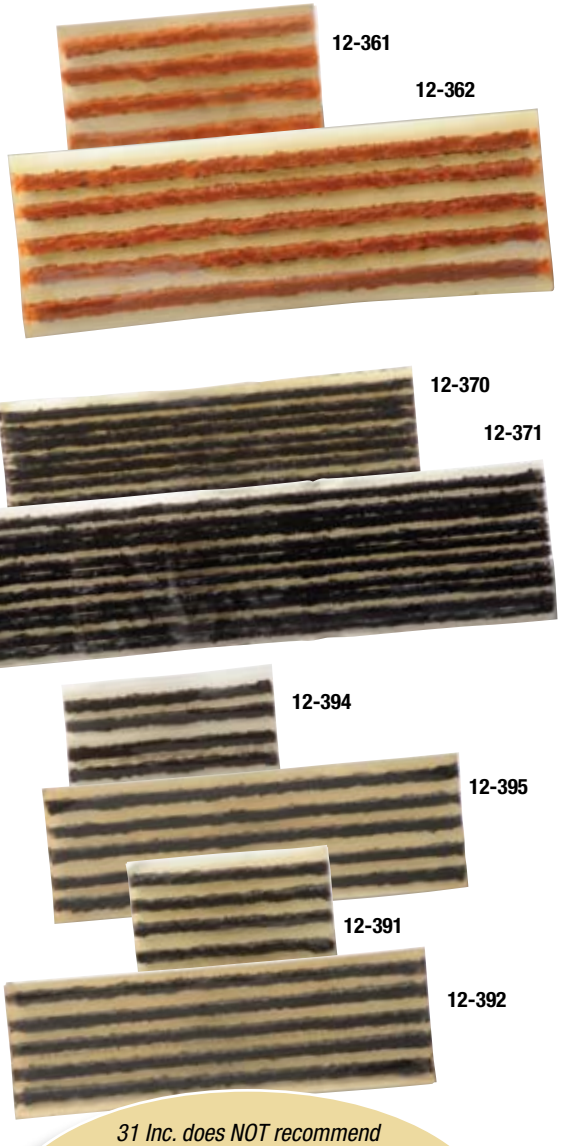
UNIVERSAL STRING-TYPE INSERTS

Universal String-Type Inserts are an excellent emergency repair when a full service repair facility is unavailable. Made of a butyl rubber, these inserts are very strong, allowing easy insertion through steel belted radials. Perfect for repairing lawn tractor, golf cart, ATV, and other off-road tires.

Universal String-Type Inserts

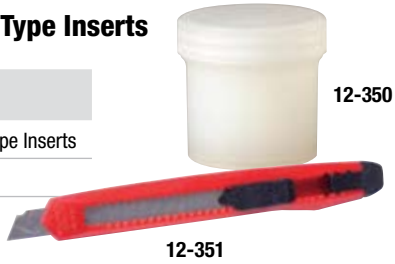
- Temporary repairs sealing by compression only
- For use in radial and bias ply tires
- Excellent for golf carts, lawn mowers, and ATV's
- Install 12-370 and 12-371 using any closed-eye needle
- Install all other string type inserts using any split-eye needle

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Universal String-Type Inserts					
Brown String-Type Inserts					
12-360JPN	Medium Fat, Brown String	4	102	50	24
12-360	Fat, Brown String	4	102	30	24
12-360/60	Fat, Brown String	4	102	60	24
12-361	Fat, Brown String	4	102	50	24
12-361 LB	Fat, Brown String in Large Bucket Includes: 1 – 14-216 insert tool and 1 – 14-204 probe	4	102	300	1
12-362	Fat, Brown String	8	204	25	24
Black String-Type Inserts					
12-370	Thin, Black String	7 1/4	184	50	24
12-371	Thin, Black String	12	305	50	24
12-394	Medium Fat, Black String	4	102	50	24
12-395	Medium Fat, Black String	8	204	25	24
12-395/50	Medium Fat, Black String	8	204	50	24
12-390	Fat, Black String	4	102	30	24
12-390/60	Fat, Black String	4	102	60	24
12-391	Fat, Black String	4	102	50	24
12-392	Fat, Black String	8	204	25	24



Accessories for String-Type Inserts

Part Number	Description
12-350	Lubricant for String-Type Inserts
12-351	Knife for String Kits



31 Inc. does NOT recommend "on the wheel" tire repairing. All X-tra Seal inserts perform the function of filling the injury as recommended by the RMA and other industry associations. See page 112 of this catalog for illustrated industry recommended repair procedures.

12-355
Metal T-Handles
50 – 4" Strings

12-356
Chrome T-Handles
50 – 4" Strings

12-357
Metal T-Handles
25 – 8" Strings

12-358
Chrome T-Handles
25 – 8" Strings

String-Type Kits

Part Number	Description/Contents	Case Qty
Heavy Duty String-Type Kits		
12-355	**HD Passenger Kit with Metal T-Handles** Contains: 50 pcs. 12-361, 1 ea. 14-217, 1 ea. 14-218, 1 ea. 14-217R, 1 jar lubricant, 1 razor knife, 1 repair booklet	6
12-356	**HD Passenger Kit with Chrome T-Handles** Contains: 50 pcs. 12-361, 1 ea. 14-317, 1 ea. 14-317P, 1 ea. 14-317R, 1 jar lubricant, 1 razor knife, 1 repair booklet	6
12-357	**HD Truck Kit with Metal T-Handles** Contains: 25 pcs. 12-362, 1 ea. 14-217T, 1 ea. 14-218, 1 ea. 14-217TR, 1 jar lubricant, 1 razor knife, 1 repair booklet	6
12-358	**HD Truck Kit with Chrome T-Handles** Contains: 25 pcs. 12-362, 1 ea. 14-317T, 1 ea. 14-317P, 1 ea. 14-317TR, 1 jar lubricant, 1 razor knife, 1 repair booklet	6
String-Type Totes		
12-361TOTE	**Passenger String Tote Kit** Contains: 50 pcs. 12-361, 1 ea. 14-204, 1 ea. 14-216, 1 jar lubricant, 1 razor knife, 1 repair booklet	10
12-362TOTE	**Truck String Tote Kit** Contains: 25 pcs. 12-362, 1 ea. 14-204, 1 ea. 14-238, 1 jar lubricant, 1 razor knife, 1 repair booklet	10
String-Type Toolbox Kits		
12-361KIT	**Passenger String Toolbox Kit** Contains: 50 pcs. 12-361, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216, 15 pcs. 11-311, 1 repair booklet	6
12-362KIT	**Truck String Toolbox Kit** Contains: 25 pcs. 12-362, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-238, 15 pcs. 11-312, 1 repair booklet	6

12-361TOTE

12-362TOTE

12-361KIT

12-362KIT

RUBBER VULCANIZING INSERTS

We manufacture a wide variety of vulcanizing inserts that fulfill the industry repair requirements of "filling the injury". When used with vulcanizing cement, these repair inserts will vulcanize, sealing the injury and becoming a permanent part of the tire.

12-100

12-103

12-101

12-107L

12-107

12-108

X-tra Smooth Inserts

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Install 1/4" inserts using 12-101 or 12-241 insert gun
- Install 3/8" inserts using 12-241 insert gun

Pro Seal Inserts

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Install using 12-241 insert gun

12-113

12-114

12-110

Mushroom Style Inserts

- For use in radial and bias ply tires
- 12-234 and 12-239 are temporary repairs sealing by compression only
- 12-213 and 12-214 will vulcanize chemically or in a heat curing system
- Install using 12-241 insert gun

12-210

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
X-tra Smooth Inserts					
12-100	**X-tra Smooth Plug Kit**, Contains: 1 ea. 12-101, 1 can 12-107, 1 can 14-008, 1 ea. 14-211			1 Kit	6
12-101	X-tra Smooth Plug Insert Gun			–	–
12-103	Cleaning Brush for 12-101 Plug Gun			–	–
12-107	1 3/8" Orange Vulcanizing Insert	1/4	6	50	24
12-107L	1 7/8" Orange Vulcanizing Insert	1/4	6	30	24
12-108	1 7/8" Gray Vulcanizing Insert	3/8	10	30	24
Pro Seal Insert					
12-110	**Pro Seal Kit**, Contains: 2 cans 12-113, 1 can 12-114, 1 can 14-009, 1 ea. 14-211 and 12-241,			1 Kit	6
12-113	Pro Seal Insert	5/16	8	25	24
12-114	Pro Seal Insert	3/8	10	15	24
Mushroom Style Inserts					
12-210	**Mushroom Plug Kit**, Contains: 2 boxes 12-213, 1 box 12-214, 1 ea. 12-241, 1 can 14-009, 1 ea. 14-211			1 Kit	6
12-213	Orange Vulcanizing Insert	5/16	8	25	24
12-214	Orange Vulcanizing Insert	7/16	11	15	24
12-234	Black Insert	5/16	8	25	24
12-239	Black Insert	7/16	11	15	24
12-241	Mushroom Plug Gun with Small and Large Nozzles			1	20
12-922	Small Gun Nozzle (use with 12-213 and 12-234)			1	
12-923	Large Gun Nozzle (use with 12-214 and 12-239)			1	

12-213

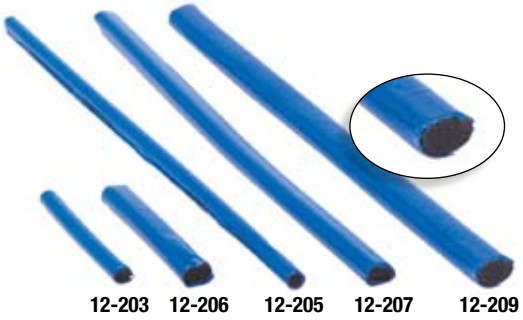
12-214

12-234

12-239

12-241

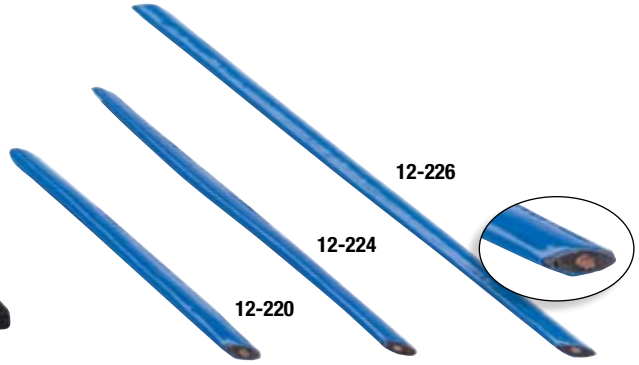
31 Inc. does NOT recommend "on the wheel" tire repairing. All X-tra Seal inserts perform the function of filling the injury as recommended by the RMA and other industry associations. See page 112 of this catalog for illustrated industry recommended repair procedures.



Gray Gum Poly Wrapped Inserts

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Install using any open-eye needle

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Gray Gum Poly Wrapped Inserts					
12-203	2" Round Insert, (50mm)	3/16	5	20	24
12-205	8" Round Insert, (203mm)	3/16	5	20	10
12-206	2" Oval Insert, (50mm)	1/4 x 5/16	6 x 8	20	24
12-207	8" Oval Insert, (203mm)	1/4 x 5/16	6 x 8	20	10
12-209	8" Lg. Oval Insert, (203mm)	5/16 x 7/16	8 x 11	10	10

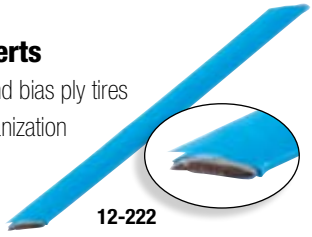


Fibre-Seal Inserts

- For use in radial and bias ply tires
- Designed for chemical vulcanization
- Rubber with fiber core wrapped in gray gum and blue poly
- Install using any split-eye needle

Vulcanizing Inserts

- For use in radial and bias ply tires
- For chemical vulcanization
- Install using any split-eye needle



Fiber-Fill Inserts

- For use in radial and bias ply tires
- For chemical vulcanization
- Install using any split-eye needle

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Fibre-Seal Inserts					
12-221	**Fibre-Seal Kit** Contains: 1 box 12-220, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216, 15 ea. 11-311, 1 repair booklet			1 Kit	6
12-220	Fibre-Seal Insert	3 3/4	95	50	10
12-224	Fibre-Seal Insert	5 1/4	133	40	10
12-226	Fibre-Seal Insert	7 1/2	190	25	10
Vulcanizing Inserts					
12-222	Vulcanizing Inserts	3 3/4	95	50	10
Fiber-Fill Inserts					
12-218	1/8" Insert, Red Poly	3 7/8	98	50	10
12-218-5.25	1/8" Insert, Red Poly	5 1/4	133	50	10
12-218-7.50	1/8" Insert, Red Poly	7 1/2	190	50	12
12-219	1/4" Insert, Blue Poly	3 7/8	98	50	10
12-219-5.25	1/4" Insert, Blue Poly	5 1/4	133	50	10
12-219-7.50	1/4" Insert, Blue Poly	7 1/2	190	50	12

31 Inc. does NOT recommend "on the wheel" tire repairing. All X-tra Seal inserts perform the function of filling the injury as recommended by the RMA and other industry associations. See page 112 of this catalog for illustrated industry recommended repair procedures.

Bowtie and Sawtooth Style Inserts

- For use in radial and bias ply tires
- Designed for chemical vulcanization
- Install using any open-eye needle

12-310

31 Inc. does NOT recommend "on the wheel" tire repairing. All X-tra Seal inserts perform the function of filling the injury as recommended by the RMA and other industry associations. See page 112 of this catalog for illustrated industry recommended repair procedures.

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
Bowtie and Sawtooth Style Inserts					
12-310	**Sawtooth Style Plug Kit**, Contains: 1 box 12-311, 1 can 14-008, 1 ea. 14-211, 1 ea. 14-212			1 Kit	6
12-311	3-Ply Sawtooth	2 3/8 x 1/4	60 x 6	50	24
12-312	3-Ply Sawtooth	2 3/8 x 1/2	60 x 13	25	24
12-331	5-Ply Bowtie, Orange	2 1/4 x 3/8	57 x 10	50	24
12-332	5-Ply Bowtie, Black	3 1/8 x 5/8	70 x 16	25	24

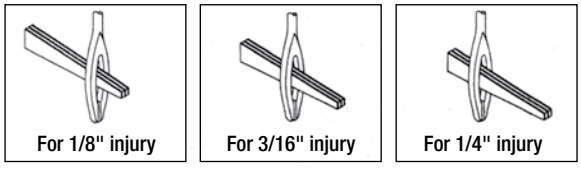
12-311 12-312 12-331 12-332 12-333

X-tra Seal Wedge™ Inserts

- Specially designed to repair any injury (small, medium, or large) up to 1/4" in diameter
- Two plies of highly elastic black rubber with three plies of premium blue vulcanizing gum make this the ideal repair
- For use in radial and bias ply tires
- Designed for chemical vulcanization
- Install as directed using any split-eye needle
- Illustrated instructions in every box

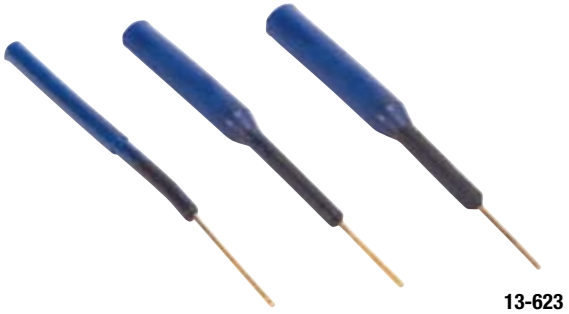
12-335

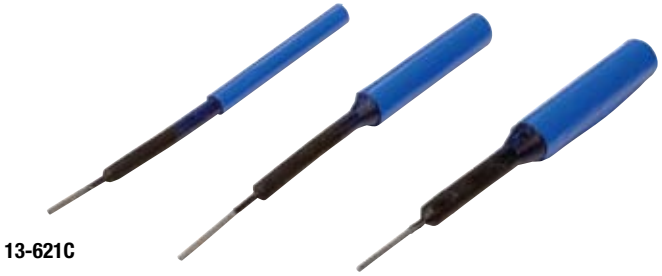
How to use the Wedge™ most effectively:



For 1/8" injury | For 3/16" injury | For 1/4" injury

Part Number	Description	Size (inches)	Size (mm)	Box Qty	Case Qty
X-tra Seal Wedge™ Inserts					
12-333	X-tra Seal Wedge™	2 1/4 x 3/8	57 x 10	50	24
12-335	**X-tra Seal Wedge™ Kit**, Contains: 2 boxes 12-333, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216			1 Kit	8





Lead-Wire Inserts – Dipped

- Dip coated with premium blue vulcanizing gum
- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- No special insert tools required. Use carbide cutter to prepare injury channel. Install from the inside, pull through, and cut off wire. *It's that easy!*

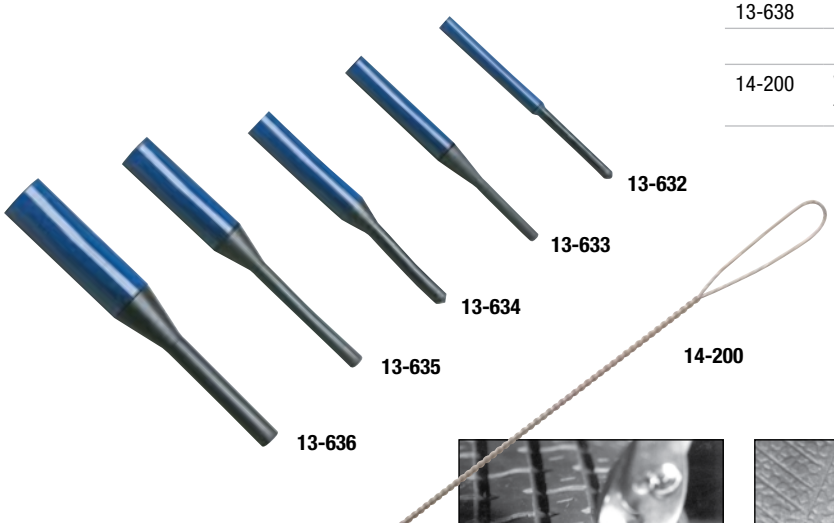
Lead-Wire Inserts – Wrapped

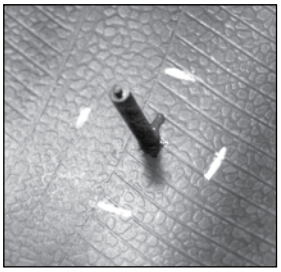
- Wrapped with gray vulcanizing gum
- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- No special insert tools required. Use carbide cutter to prepare injury channel. Install from the inside, pull through, and cut off wire. *It's that easy!*

Pull Thru Inserts

- Dip coated with premium blue vulcanizing gum
- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Install using 14-200 wire puller

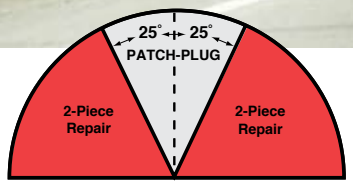
Part Number	Description	Carbide Cutter	Box Qty	Case Qty
Lead-Wire Inserts – Dipped				
13-621	3/16" (5mm)	14-345	20	10
13-622	3/8" (9mm)	14-347	20	10
13-623	13/32" (10mm)	14-348	20	10
Lead-Wire Inserts – Wrapped				
13-621C	7/32" (5.5mm)	14-345	20	10
13-622C	3/8" (9.5mm)	14-347	20	10
13-623C	7/16" (10.5mm)	14-348	20	10
Pull-Thru Inserts				
13-632	7/32" (5.5mm)	14-345	20	10
13-633	3/8" (9mm)	14-347	20	10
13-634	7/16" (10.5mm)	14-348	5	10
13-635	5/8" (15mm)	14-349	5	10
13-636	13/16" (20.5mm)	–	5	10
13-637	1" (25mm)	–	5	10
13-638	1 1/4" (31mm)	–	5	10
14-200	Wire Installation Tool for 13-632 - 13-638		1	–





COMBINATION UNITS

Combination repair units fulfill the industry repair requirements of "filling the injury" and "patching the inner liner". Use when the injury angle is 25 degrees or less. Fast, effective, and easier to use than traditional 2-piece repairs.

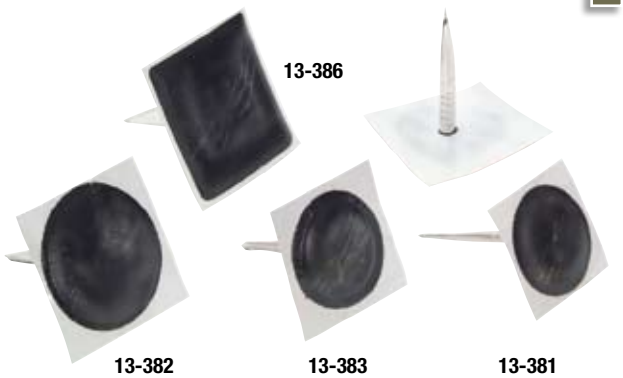


Universal Quilled Combination Units

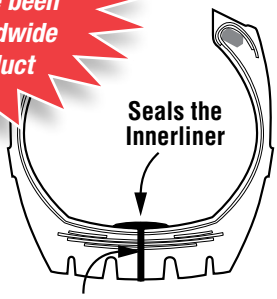
- For use in radial and bias ply tires
- Designed for chemical vulcanization
- Black vulcanizing gum, white backing
- Equipped with metal quill for easy installation

• Economical • Easy to Use • Maxi-Effective

Do not leave yourself exposed to liability! Ensure that your repair procedures conform to the industry standards that are approved by the industry trade associations (Rubber Manufacturer's Association and Tire Industry Association), all major tire manufacturers, and all responsible manufacturers of tire repair materials.



Over 250 million safe, permanent, effective tire repairs have been performed worldwide with this product

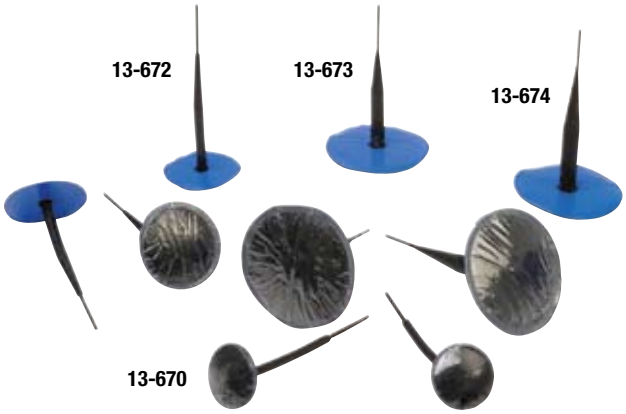


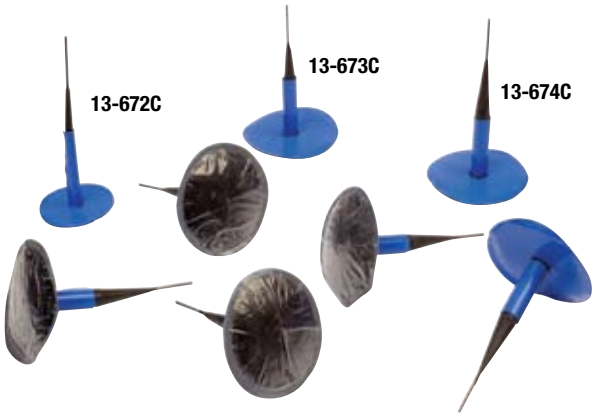
Part Number	Patch Size	Stem Diameter inches (mm)	Box Qty	Case Qty
Universal Quilled Combination Units				
13-381	1 5/8" (42mm) Round	5/32" (4mm)	20	10
13-383	1 7/8" (47mm) Round	7/32" (5.5mm)	20	10
13-382	2 1/8" (55mm) Round	5/16" (8mm)	15	10
Also available in boxes of 100. Use part number 13-381-100, etc.				
13-381SQ	1 5/8" (40mm) Square	5/32" (4mm)	20	10
13-382SQ	2 3/8" (60mm) Square	5/16" (7.5mm)	15	10
13-386	2 3/8" (60mm) Square	7/16" (11mm) Flat	10	10

Radial Quilled Combination Units

- For use in the tread area of radial tires
- Designed for chemical vulcanization
- Black vulcanizing gum, white backing
- Equipped with metal quill for easy installation

Part Number	Patch Size	Stem Diameter Inches (mm)	Box Qty	Case Qty
Radial Quilled Combination Units				
13-375	1 5/8" x 2 7/8" (42 x 73mm)	5/16" (7.5mm)	15	10
13-376	2 1/4" x 4" (57 x 100mm)	3/8" (9mm)	10	10
13-377	2 5/8" x 5 3/8" (67 x 137mm)	15/32" (12mm)	5	10



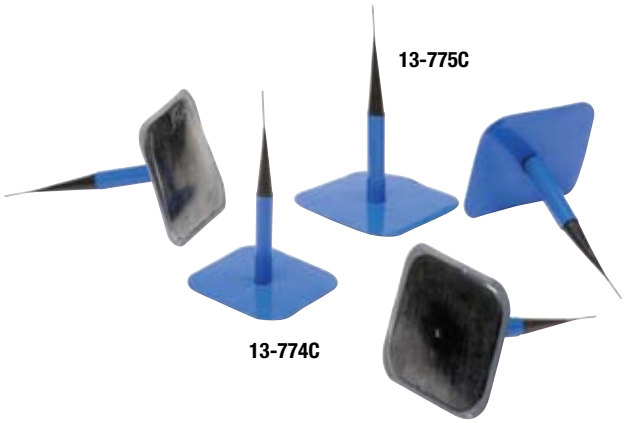


Lead-Wire Combination Units – Dipped Stem

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Patch portion has gray vulcanizing gum with blue poly backing
- Stem portion is dip coated with premium vulcanizing gum
- No special insert tools required. Use carbide cutter to prepare injury channel. Install from the inside, pull through, and cut off wire. *It's that easy!*

Lead-Wire Combination Units – Wrapped Stem

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Patch portion has gray vulcanizing gum with blue poly backing
- Stem portion is wrapped with gray vulcanizing gum
- No special insert tools required. Use carbide cutter to prepare injury channel. Install from the inside, pull through, and cut off wire. *It's that easy!*



Part Number	Patch Size	Stem Diameter inches (mm)	Carbide Cutter	Box Qty	Case Qty
Lead-Wire Combination Units – Dipped					
13-670	1" (27mm)	1/8" (3.8mm)	–	20	12
13-672	1 5/8" (42mm)	3/16" (5mm)	14-345	24	10
13-673	2 1/8" (55mm)	1/4" (7.5mm)	14-346	24	10
13-674	2 1/8" (55mm)	3/8" (8.5mm)	14-347	24	10
Lead-Wire Combination Units – Wrapped					
13-672C	1 5/8" (42mm)	7/32" (5.5mm)	14-345	24	10
13-673C	2 1/8" (55mm)	5/16" (8mm)	14-346	24	10
13-674C	2 1/8" (55mm)	3/8" (9.5mm)	14-347	24	10
Square Lead-Wire Combination Units					
13-774C	3 1/2" (88mm) Square	7/16" (11mm)	14-348	5	6
13-775C	4" (100mm) Square	9/16" (14mm)	14-349	5	6

Square Lead-Wire Combination Units

- For use in radial and bias ply tires
- Designed for chemical or heat vulcanization
- Patch portion has gray vulcanizing gum with blue poly backing
- Stem portion is wrapped with gray vulcanizing gum
- No special insert tools required. Install from the inside, pull through, and cut off wire. *It's that easy!*

Agricultural Combination Units

- For use in radial and bias ply agricultural and OTR tires (low pressure, slow speed)
- Designed for chemical or heat vulcanization
- Patch portion has gray vulcanizing gum with blue poly backing

Agricultural Combination Units					
13-788	4" (100mm)	5/8" (15mm)	14-349	5	–

SECTION REPAIR MATERIALS

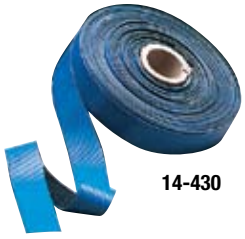
31 Incorporated manufacturers only the highest quality cushion gum, coated cord, and fill rubber for the professional installer. Choose only X-tra Seal quality repair materials to meet your section repair needs.

Stripping Stock*

Free flowing, quality stock for stripping edges of tread rubber to cover excess buffed surfaces. Use on sidewalls to improve appearance. Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 3 months

Part Number	Description	Approx. Width	Approx. Gauge	Approx. Weight/ Roll lbs.	kg
Stripping Stock*					
14-430		1 1/4" (32mm)	1/16" (1.6mm)	2	.091



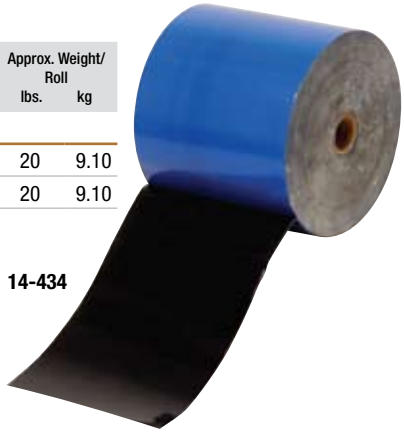
14-430

Floater Gum*

A must in repairing. Use underneath patch to provide a "Shock Absorber" to ensure longer patch life. Special flexing rubber reduces patch edge cracking and heat build-up due to "Floating Action". Use 14-515 or 14-516 Black Vulcanizing Cement with 14-435 gum. Use 14-511 cement with 14-434 chemical gum.

Shelf life = 3 months

Part Number	Description	Approx. Width	Approx. Gauge	Approx. Weight/ Roll lbs.	kg
Floater Gum*					
14-434	Chemical Cure Only	8" (203mm)	1/32" (0.79mm)	20	9.10
14-435	Heat Cure Only	8" (203mm)	1/32" (0.79mm)	20	9.10



14-434

All Purpose Cushion Gum*

Designed for use in all types of repairing. Use in tread, sidewall and cord body filling. Excellent for buzz-outs. Replaces tread gum and innerliner gum. Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 3 months

Note:
50 durometer is for SIDEWALL applications.
64 durometer is for TREAD applications.

14-451

14-449

Part Number	Approx. Width	Approx. Gauge	Approx. Weight/ Roll lbs.	kg	Durometer
All Purpose Cushion Gum*					
14-449	5" (127mm)	1/8" (3mm)	1	0.45	50
14-450	5" (127mm)	1/8" (3mm)	1	0.45	64
14-451	18" (457mm)	1/8" (3mm)	10	4.50	50
14-452	18" (457mm)	1/8" (3mm)	10	4.50	64
14-453	18" (457mm)	1/8" (3mm)	20	9.10	50
14-454	18" (457mm)	1/8" (3mm)	20	9.10	64

*** CURING INFORMATION**

30 minutes at 280˚ F (138˚ C), 50 minutes at 260˚ F (127˚ C).

Cure Rate = 10 minutes for every 1/8" (3mm).

When using a cold spotter, you will have to add the manufacturer's recommended warm-up time.

Coated Nylon Cord

Use to build reinforced repairs to tires, conveyer belting, and other types of fabric reinforced rubber goods. High tensile strength tire cord calendared with high quality skim compound to a uniform gauge. Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 1 year

Part Number	Description	Approx. Width	Approx. Gauge	Approx. Weight/ Roll lbs.	kg
Coated Nylon Cord					
14-461		20" (508mm)	.045" (1.1mm)	20	9.1
14-462		20" (508mm)	.045" (1.1mm)	50	22.7
Coated Aramid Cord					
14-463	Chemical Cure Only	20" (508mm)	.045" (1.1mm)	20	9.1
14-464	Heat Cure Only	20" (508mm)	.045" (1.1mm)	50	22.7

*** CURING INFORMATION**

30 minutes at 280˚ F (138˚ C), 50 minutes at 260˚ F (127˚ C).

Cure Rate = 10 minutes for every 1/8" (3mm).

When using a cold spotter, you will have to add the manufacturer's recommended warm-up time.

Extruder Rope

Rubber extruded in rope form especially for mini-extruder guns. For filling buzz-outs, section repairs, cuts and snags.

Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 3 months

Note: 50 durometer is for SIDEWALL applications. 64 durometer is for TREAD applications.

Part Number	Diameter	Approx. Weight/ Box lbs.	kg	Durometer
Extruder Rope*				
14-465	3/8" (10mm)	25	11.3	50
14-466	3/8" (10mm)	25	11.3	64

*** CURING INFORMATION**

30 minutes at 280˚ F (138˚ C), 50 minutes at 260˚ F (127˚ C).

Cure Rate = 10 minutes for every 1/8" (3mm).

When using a cold spotter, you will have to add the manufacturer's recommended warm-up time.

Coated Aramid Cord

Extremely strong reinforcing material. Use to build reinforced repairs to tires, conveyer belting, and other types of fabric reinforced rubber goods especially in applications where it is important to minimize the gauge of the cord without compromising the strength. High tensile strength tire cord calendared with high quality skim compound to a uniform gauge. Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 1 year

14-438

A and B Compound

Use for chemical cure spot repairs and repairs to other industrial products. A two part, A and B putty. These materials, when kneaded together in equal portions, begin to cure chemically at room temperature.

Shelf life = 6 months.

Part Number	Description	Case Qty
14-438	1 lb. (0.45 kg) A and B Compound	6 sets

14-421 **14-422** **14-423**

Penny Patch Nail Hole Repairs for Retreaders*

Use 14-515 or 14-516 Black Vulcanizing Cement.

Shelf life = 3 months

Part Number	Description	Size (inches)	Size (mm)	Box Qty
14-421	Reinforced	1	25	100
14-422	Reinforced	1 1/2	38	100
14-423	Reinforced	2	50	100

Lincoln Vulcanizing Equipment

The full line of Lincoln vulcanizing equipment, replacement parts, and accessories is available. Ask for details.

14-LMC200
Tube Plate Vulcanizer

- Economical and easy to use.
- Heat unit with snap-type thermostat reaches curing temperature fast.
- Detachable flat plate for vulcanizing valve stems.

14-LMC400B
Truck Tire Vulcanizer

- Lightweight, tubular steel frame (easy to handle).
- Faster travel, Acme thread hand-wheel screw.
- Larger capacity frame allows repairs in tires thru 12.00 cross section.
- High performance heat units feature platen mounted preset (European approved) thermostats which reduces heat-up time to 5 minutes.

14-LMC2000
Air Operated Truck Tire Vulcanizer

- The ultimate flexibility in tire repair!
- The only spotter in the market that handles tread, shoulder, and sidewall repairs on all kinds of tires from low profile to super singles. Easily adapts to future tire sizes simply by changing the contour plates.
- Patented piston/pad system for expert repairs even by novice operators.
- Inside-outside heat system.
- Spring loaded mechanical pressure with solid heat units for tread and shoulder repairs.
- Extremely economical - No expensive air bags to replace.
- Optional large-capacity stand supports both tire and vulcanizer with dual 16" rollers for easy tire rotation.
- Optional plate package contains 9 plates.

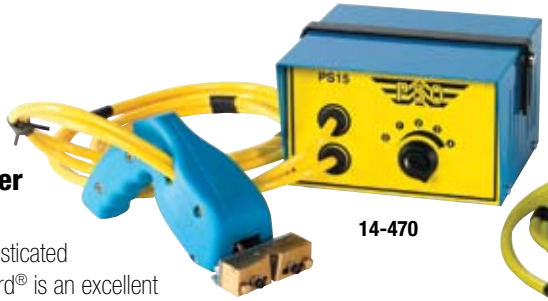
14-LMC1000
Large Truck-Tractor Vulcanizer

- Spring loaded lower heat unit maintains even pressure throughout the curing process eliminating frequent re-tightening of heat units.
- Lower telescoping assembly slides back for quick mounting or removal of spotter then locks into position for use.
- Acme threaded adjusting screw for upper heat unit.
- Solid one-piece frame is easy to handle and weighs only 30 lbs.
- 3 5/16" diameter round heat units fit into close quarters for small repairs yet have wattage output to handle adapter plates for large repairs.
- Use for spot and section repairs in all truck, tractor, and many off road tires.

Part Number	Description	Curing Heads	Throat Depth	Throat Height A	Throat Height B	Voltage Options	Shipping Weight
14-LMC200	Tube Plate Vulcanizer	1 – 4" x 6" (10.2 x 15.2 cm)	6" (15 cm)			120V or 240V	27 lbs. (12.3 kg)
14-LMC400B	Truck Tire Vulcanizer	2 – 3 5/16" (8.4 cm)	6.25" (15.8 cm)	9.75" (24.7 cm)	15.375" (39 cm)	115V or 230V	14 lbs. (6.4 kg)
14-LMC2000	Air Operated Truck Tire Vulcanizer	3 – 6" (15.2 cm)	11.5" (29.2 cm)	24.5" (62.2 cm)		120V or 240V	74 lbs. (33.6 kg)
14-LMC1000	Large Truck-Tractor Vulcanizer	2 – 3 5/16" (8.4 cm)	14.5" (36.8 cm)	16" (40.6 cm)		120V or 240V	30 lbs. (13.6 kg)

14-470
PS15 Standard® Regroover

This high quality regroover has the rugged reliability of the more sophisticated PS15 Truckstar. The PS15 Standard® is an excellent basic regroover featuring a dial knob heat control with 4 heat presets, large cutting head, comfortable, ergonomically designed handle, and has a 370 watt transformer. A safety feature prevents the block assembly and blade from heating up until contact is made when regrooving begins.



14-470

14-470T

14-470T
PS15 Truckstar Plus® Regroover

The PS15 Truckstar Plus® is a more sophisticated regrooving unit with a large cutting head, and a comfortable, ergonomically designed handle. The digital heat control keys, which have now been integrated into the new electronic board, make the unit more reliable and allows the heat output to be regulated at close to 1%. The 500 watt transformer of the PS15 Truckstar Plus® makes regrooving easier by saving the operator time and energy as the blade slips easily through the rubber. A safety feature prevents the block assembly and blade from heating up until contact is made when regrooving begins.

14-4700TR

14-4700TR
PS15 OTR® Regroover

The PS15 OTR® is designed specifically for regrooving off road and heavy equipment tires. This unit features a dial knob heat control with 5 heat presets, large cutting head, and comfortable, ergonomically designed handle. With its 1000 watt transformer and heavy duty cables, this unit easily handles intensive regrooving with R5, C5, and C6 large blades. A safety feature prevents the block assembly and blade from heating up until contact is made when regrooving begins.

14-477

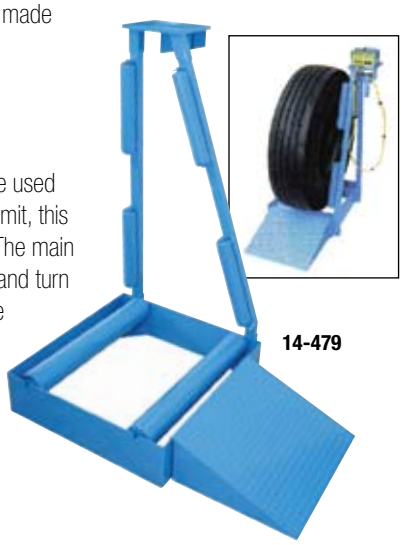
14-477
PS15 Echo Tread® Regroover

The PS15 Echo Tread® is a revolutionary regroover featuring an echographic transducer. This device measures the tread thickness remaining on the truck tire and calculates the optimum regrooving depth. No more cutting into and damaging casings! The PS15 Echo Tread® measures the total thickness of rubber down to the first cables (steel or nylon), subtracts 2.5mm, the minimum amount of rubber that must remain on the casing, and displays the optimum regrooving depth. This digital unit features a large cutting head, comfortable, ergonomically designed handle, and has a 500 watt transformer that makes regrooving easier by saving the operator time and energy as the blade slips easily through the rubber. A safety feature prevents the block assembly and blade from heating up until contact is made when regrooving begins.

14-478

14-478
HC1000 Heat Knife

The HC1000 Heat Knife is designed for cutting rubber and plastics. The digital heat controls allow regulation of the heat output of the 370 watt transformer at close to 1%. The blade heats up only when the operators hand is in contact with the metallic key on the handle of the tool.



14-479

14-479
Regrooving Stand

This regrooving stand makes regrooving easier and can be used with all size truck tires. While there is no physical tire size limit, this stand works best with truck tires up to 660 lbs. (300kg). The main rollers lean the tire against the four smaller guiding rollers and turn in only one direction. The stand features a shelf to hold the regroover and a case to hold the regroover handle when not in use. The stand can be easily assembled and disassembled in seconds without the use of tools and when assembled measures 24.41" x 23.62" x 47.25" (62cm x 60cm x 120cm) and weighs 110 lbs. (50kg).

Regroover Blades

- Very high quality due to our exclusive double sharpening system on a specific steel.

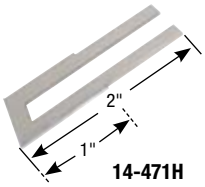
14-471 14-472 14-473 14-474 14-475

• Our blades can be fitted to any regroover •
• Any regrooving blades can be fitted to our regroovers •

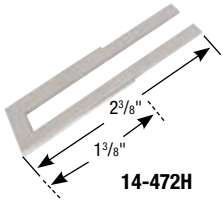
14-471S 14-472S 14-473S

14-474S 14-475S 14-476S

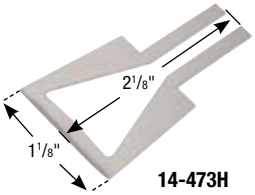
Heat Knife Blades



14-471H



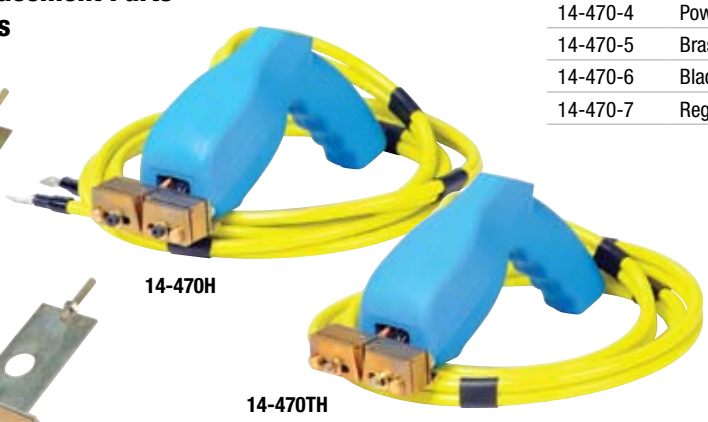
14-472H



14-473H

Regroover Replacement Parts and Accessories

14-470B



14-470H

14-470TH

14-470TB

14-470-1

14-470-2

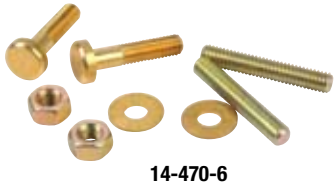
14-470-5

14-470-3

14-470-4

14-470-7

Easily set blade cutting depth from 4 to 9 mm (5/32" to 11/32")



14-470-6

Part Number	Description	Cutting Width (mm)	Box Qty
Round Regroover Blades			
14-471	#1 Round Blade (R1)	3-5mm	20
14-472	#2 Round Blade (R2)	5-11mm	20
14-473	#3 Round Blade (R3)	7-13mm	20
14-474	#4 Round Blade (R4)	9-16mm	20
14-475	#5 Round Blade (R5)	11-18mm	20
Square Regroover Blades			
14-471S	#1 Square Blade (C1)	3-5mm	20
14-472S	#2 Square Blade (C2)	6-10mm	20
14-473S	#3 Square Blade (C3)	8-12mm	20
14-474S	#4 Square Blade (C4)	10-14mm	20
14-475S	#5 Square Blade (C5)	12-17mm	20
14-476S	#6 Square Blade (C6)	20-28mm	10
Heat Knife Blades			
14-471H	#1 Heat Knife Blade		5
14-472H	#2 Heat Knife Blade		5
14-473H	#3 Heat Knife Blade		5
Regroover Replacement Parts and Accessories			
14-470B	Replacement Block Assembly for 14-470		
14-470TB	Replacement Block Assembly for 14-470T		
14-470H	Handle / Cord Assembly for 14-470		
14-470TH	Handle / Cord Assembly for 14-470T		
14-470-1	Allen Wrench for 14-470		
14-470-2	Wood Handle Wrench for 14-470T		
14-470-3	Replacement Switch for 14-470		
14-470-4	Power Cord for 14-470T		
14-470-5	Brass Wedge Set for Block Assembly		
14-470-6	Blade Screw Set for Block Assembly		
14-470-7	Regroover Blade Depth Gauge		

TIRE REPAIR KITS AND ASSORTMENTS

Whether starting up a tire repair service center or in need of a compact emergency repair kit, we offer a wide selection of kits and assortments to meet your needs.

12-100

12-110

12-210

12-221

Part Number	Description	Case Qty
Vulcanizing Plug Kits		
12-100	**X-tra Smooth Plug Kit** Contains: 1 ea. 12-101, 1 can 12-107, 1 can 14-008, 1 ea. 14-211	6
12-110	**Pro Seal Kit** Contains: 2 cans 12-113, 1 can 12-114, 1 can 14-009, 1 ea. 14-211 and 12-241	6
12-210	**Mushroom Plug Kit** Contains: 2 boxes 12-213, 1 box 12-214, 1 ea. 12-241, 1 can 14-009, 1 ea. 14-211	6
12-221	**Fibre-Seal Kit** Contains: 1 box 12-220, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216, 15 ea. 11-311, repair booklet	6
12-310	**Sawtooth Style Plug Kit** Contains: 1 box 12-311, 1 can 14-008, 1 ea. 14-211, 1 ea. 14-212	6
12-335	**X-tra Seal Wedge™ Kit** Contains: 2 boxes 12-333, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216	8
String-Type Toolbox Kits		
12-361KIT	**Passenger String Toolbox Kit** Contains: 50 pcs. 12-361, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-216, 15 pcs. 11-311, repair booklet	6
12-362KIT	**Truck String Toolbox Kit** Contains: 25 pcs. 12-362, 1 can 14-008, 1 ea. 14-204, 1 ea. 14-238, 15 pcs. 11-312, repair booklet	6

12-310

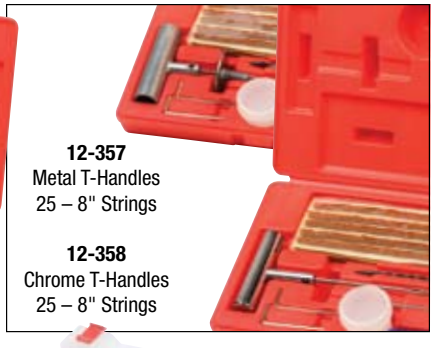
12-335

12-361KIT

12-362KIT

12-355
Metal T-Handles
50 – 4" Strings

12-356
Chrome T-Handles
50 – 4" Strings



12-357
Metal T-Handles
25 – 8" Strings

12-358
Chrome T-Handles
25 – 8" Strings

Part Number	Description	Case Qty

Heavy Duty String-Type Kits

12-355	**HD Passenger Kit with Metal T-Handles** Contains: 50 pcs. 12-361, 1 ea. 14-217, 1 ea. 14-218, 1 ea. 14-217R, 1 jar lubricant, 1 razor knife, repair booklet	6
12-356	**HD Passenger Kit with Chrome T-Handles** Contains: 50 pcs. 12-361, 1 ea. 14-317, 1 ea. 14-317P, 1 ea. 14-317R, 1 jar lubricant, 1 razor knife, repair booklet	6
12-357	**HD Truck Kit with Metal T-Handles** Contains: 25 pcs. 12-362, 1 ea. 14-217T, 1 ea. 14-218, 1 ea. 14-217TR, 1 jar lubricant, 1 razor knife, repair booklet	6
12-358	**HD Truck Kit with Chrome T-Handles** Contains: 25 pcs. 12-362, 1 ea. 14-317T, 1 ea. 14-317P, 1 ea. 14-317TR, 1 jar lubricant, 1 razor knife, repair booklet	6

12-361TOTE

12-362TOTE

String-Type Totes

12-361TOTE	**Passenger String Tote Kit** Contains: 50 pcs. 12-361, 1 ea. 14-204, 1 ea. 14-216, 1 jar lubricant, 1 razor knife, 1 repair booklet	10
12-362TOTE	**Truck String Tote Kit** Contains: 25 pcs. 12-362, 1 ea. 14-204, 1 ea. 14-238, 1 jar lubricant, 1 razor knife, repair booklet	10

13-201

13-208

Bicycle Repair Kits

13-201	**Bicycle Tube Repair Kit In Dispenser Sleeve** Contains: 3 - 1" x 1" patch, 8 sq. in. of rubber, 1 cement tube, 1 thumb buffer – 12 kits per sleeve	12
13-208	**Bicycle Tube Repair Kit In Canister** Contains: 30 sq. in. of rubber, 8 – 1" x 1" patches, 1 cement tube, 1 thumb buffer	12
13-209	**Bicycle Tube Repair Kit** Contains: 10 – mini patches, 1 cement tube, 1 thumb buffer	

13-209

Truck Tire Nail Hole Repair Kit

14-650	Contains: *Repair Units:* 20 pc. 11-311, 10 pcs. 11-491, 30 pcs. 11-655, 10 pcs. 11-712 *Comb. Units:* 6 pcs. 13-674 *Chemicals:* 1 can 14-100, 1 can 14-128A, 2 cans 14-511 *Inserts:* 20 pcs. 13-622 *Repair Tools:* 1 ea. 14-204, 1 ea. 14-305, 1 ea. 14-314, 1 ea. 14-315, 2 ea. 14-553 *Air Tools/Acces.:* 1 ea. 14-319LST, 1 ea. 14-324, 1 ea. 14-347, 1 ea. 14-365, 1 ea. 14-802 *Miscellaneous:* repair manual, 1 ea. H.D. plastic toolbox

14-650

Tire Repair Cabinet

14-600	Empty Tire Repair Cabinet – 9" x 20" x 23" (229mm x 508mm x 584mm)
14-602	**Tire Repair Cabinet Assortment** Contains: 1 box 11-311, 2 boxes 13-621, 2 boxes 13-670, 2 boxes 13-672, 2 cans 14-008, 2 cans 14-100, 1 can 14-128A, 1 ea. 14-204, 1 ea. 14-301, 1 ea. 14-305, 1 ea. 14-314, 1 ea. 14-315H, 1 ea. 14-319LS, 1 ea. 14-320, 1 ea. 14-329, 1 ea. 14-331, 1 ea. 14-333, 1 ea. 14-399, 1 ea. 14-345, 1 ea. 14-554

14-600

X-TRA SEAL CHEMICALS

We manufacture the widest array of tire service chemicals in the industry today. Most chemicals are available in bulk. Ask for details.

Part Number	Description		Case Qty
Chemical Vulcanizing Cement			
14-004	4 oz. (118ml)	Flammable	12
14-008	8 oz. (236ml)	Flammable	24
14-009	8 oz. (236ml) Oblong Kit Can, Squirt Top	Flammable	24
14-032	32 oz. (945ml)	Flammable	12
14-008GAL	1 Gallon (3.8L)	Flammable	4
14-513	8 oz. (236ml)	Non-Flammable	24
14-514	32 oz. (945ml)	Non-Flammable	12
14-513GAL	1 Gallon (3.8L)	Non-Flammable	4
Heavy Duty Super-Blu Vulcanizing Cement			
14-511	8 oz. (236ml)	Flammable	24
14-512	32 oz. (945ml)	Flammable	12
14-511GAL	1 Gallon (3.8L)	Flammable	4
Black Retreader's Cement			
14-515	32 oz. (945ml)	Flammable	12
14-515R	5 Gallon (19L) Spray Type	Flammable	1
14-516	32 oz. (945ml) Heavy Duty	Flammable	12
14-516R	5 Gallon (19L) Brush Type	Flammable	1
Tube Cement			
14-020	1 oz. (28ml)	Flammable	144
14-041	0.41 oz. (11ml)	Flammable	144
Buffing Solution – Rubber Prep			
14-100	32 oz. (945ml)	Flammable	12
14-100GAL	1 Gallon (3.8L)	Flammable	4
14-102	16 oz. Aerosol	Non-Flammable	12
14-490	32 oz. (945ml)	Non-Flammable	12
Bead Sealer			
14-101	32 oz. (945ml)	Flammable	12
14-101A	32 oz. (945ml) Heavy Duty	Flammable	12
14-101GAL	1 Gallon (3.8L)	Flammable	4

Chemical Vulcanizing Cement
For chemical or heat vulcanization. The flammable vulcanizing cement is our most popular, fast dry cement. For use with any X-tra Seal repair unit or insert. When used on large reinforced patches, coat patch and inner liner with cement.

Heavy Duty Supr-Blu Vulcanizing Cement
Contains more rubber solids than our regular cement for a stronger bond.

14-041 Rubber Cement

Black Retreader's Cement
For use in heat vulcanizing only (not for chemical vulcanization).

Buffing Solution
For removing dirt, debris and mold lubricants from the repair area prior to buffing.

Bead Sealer
For sealing small air leaks between the tire bead and the wheel.

Part Number		Description	Case Qty
Inner Liner Sealer			
14-128A	16 oz. (472ml)	Flammable	12
Bead Bustr			
14-771	32 oz. (945ml)	Flammable	12
14-772	1 Gallon (3.8L)	Flammable	4
Black Tire Paint			
14-154	5 Gallon (19L)	Ready to Use	1
14-155	55 Gallon (209L)	Ready to Use	1
Tire Talc			
14-550	1 lb. (0.45kg)	Tire Talc in sifter can	12
Air Tool Oil			
14-760	32 oz. (945ml)		12

14-128A

14-771

Inner Liner Sealer
For sealing the over-buff area around a finished repair.

Bead Bustr
Bead Bustr is a penetrating chemical that helps free stubborn beads from the wheel making demounting easier.

14-760

14-154

14-550

14-754

14-755

14-758

14-765

14-756

14-767

Part Number		Description	Mix with Water Ratio	Case Qty
Tire Service Chemicals				
14-754	32 oz. (945ml)	Whitewall Cleaner	Mix 1:1	12
14-754GAL	1 Gallon (3.8L)	Whitewall Cleaner	Mix 1:1	4
14-755	8 oz. (236ml)	Leak Seeker Concentrate	Mix 8:1	12
14-758	32 oz. (945ml)	Shine-All Protectant	Ready to Use	12
14-758GAL	1 Gallon (3.8L)	Shine-All Protectant	Ready to Use	4
Liquid Car Wash				
14-765	1 Gallon (3.8L)		128:1	4
Window Cleaning Products				
14-756	1 Gallon (3.8L)	Summer Service Island Cleaner Concentrate	10:1	4
14-757	1 Gallon (3.8L)	Winter Service Island Cleaner Concentrate	6:1	4
14-767	1 Gallon (3.8L)	Super Clean Glass Cleaner Concentrate	128:1	4
Applicators				
14-381	Quart Cement Can with Plastic Handled Brush			
14-381B	Replacement Brush/Lid for Cement Can			

14-381B

14-381

MOUNTING/DEMOUNTING COMPOUNDS

To prevent damage to tire beads, always use quality X-tra Seal Mounting and Demounting Compounds. We offer an industry leading selection for the tire service professional.

Part Number		Description	Case Qty
Euro-Paste			
14-700	6 1/2 lb. (3kg)	X-tra Seal Euro-Paste, White	4
14-701	11 lb. (5kg)	X-tra Seal Euro-Paste, White	4
14-705	6 1/2 lb. (3kg)	X-tra Seal Euro-Paste, Blue	4
14-706	11 lb. (5kg)	X-tra Seal Euro-Paste, Blue	4
14-700E	6 1/2 lb. (3kg)	Econo-Paste, White	4
14-701E	11 lb. (5kg)	Econo-Paste, White	4
Mounting/Demounting Compound			
14-708E	8 lb. (3.64kg)	X-tra Seal	4
14-725E	25 lb. (11.36kg)	X-tra Seal	1
14-708	8 lb. (3.64kg)	MURPHY'S	4
14-725	25 lb. (11.36kg)	MURPHY'S	1
14-740	40 lb. (18.18kg)	MURPHY'S	1
Tire Mounting/Demounting Lubricant			
14-751	13 oz. (386ml)	Mix with 1 Gallon Water	10
14-752	32 oz. (945ml)	Ready to Use	12
14-753	1 Gallon (3.8L)	Mix 4:1 with Water	4
14-753PM	1 Gallon (3.8L)	Ready to Use	4
No Rim Rust			
14-748E	5 lb. (2.27kg)	X-tra Seal	6
14-749E	25 lb. (11.36kg)	X-tra Seal	1
14-748	4 1/2 lb. (2.05kg)	Freylube	6
14-749	25 lb. (11.36kg)	Freylube	1
Applicators			
14-378	11" (279mm) Cotton Tire Swab		
14-378L	15" (381mm) Cotton Tire Swab		
14-711	Euro-Paste Applicator Brush, 1" Diameter		
14-712	Small Applicator Brush, 1 1/2" Diameter		
14-713	Large Applicator Brush, 2" Diameter		
14-747	Freylube Applicator		
Accessories			
14-720	Small Mounting Ring for Paste, 6 3/4" Diameter		
14-721	Large Mounting Ring for Paste, 8" Diameter		
17-996	Lube Bucket for Center Post Tire Changers		
17-997	Lube Bucket for Rim Clamp Tire Changers		

TIRE REPAIR TOOLS

A tire repair can only be successful if the technician is well equipped to do the job. For this reason, we offer the largest selection of quality tire repair tools in the industry today.

Part Number	Description

Open-Eye Needle

14-212	Pistol-Grip Open-Eye Needle
14-312T	Open-Eye Needle, 5 7/8" needle
14-312THD	Open-Eye Needle, 7 5/8" needle

Closed-Eye Needle

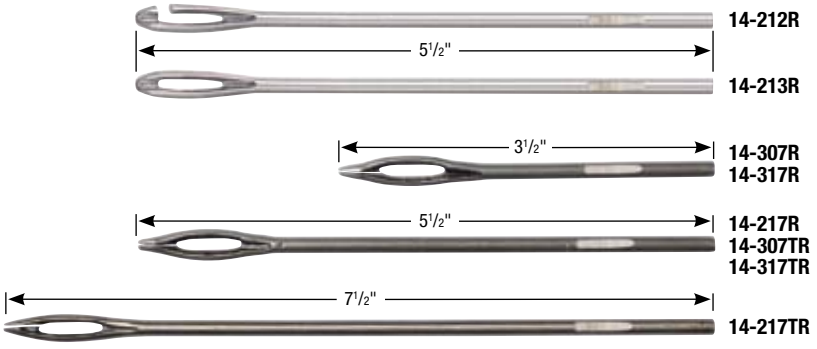
14-213	Pistol-Grip Closed-Eye Needle
14-313T	Closed-Eye Needle, 7 7/8" needle

Split-Eye Needle

14-216	Pistol-Grip Split-Eye Needle
14-217	Die-Cast T-Handle Split-Eye Needle
14-217H	Die-Cast Handle for 14-217
14-217S	Die-Cast Slide for 14-217
14-238	Pistol-Grip Split-Eye Needle, 5 1/2" Needle
14-307	Pistol-Grip Split-Eye Needle, Replaceable
14-317	Chrome T-Handle Split-Eye Needle

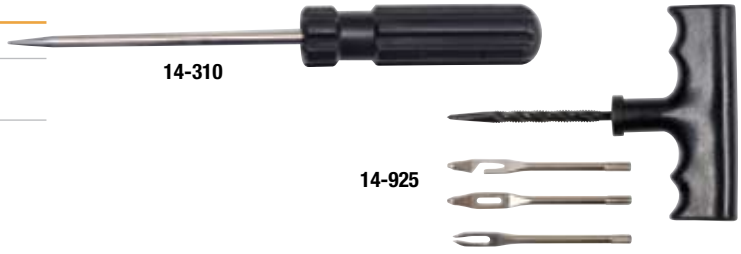
Replacement Needles

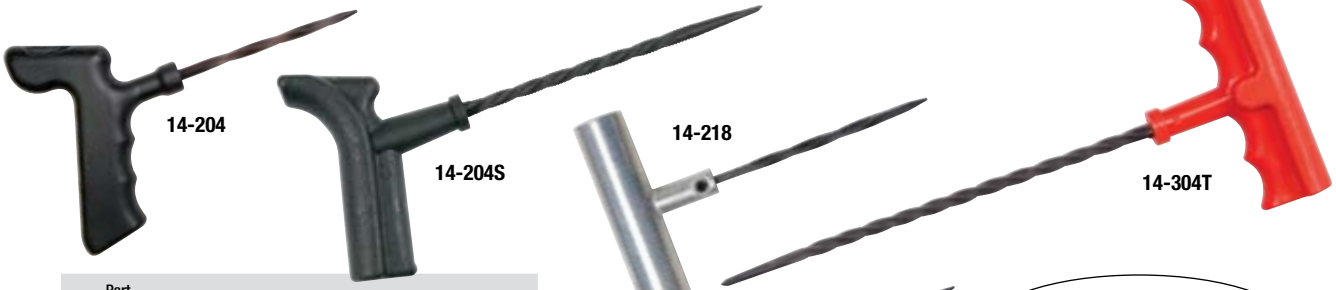
14-212R	Open-Eye Needle for 14-217H
14-213R	Closed-Eye Needle for 14-217H
14-217R	Split-Eye Needle for 14-217H, Passenger
14-217TR	Split-Eye Needle for 14-217H, Truck
14-307R	Split-Eye Needle for 14-307, Passenger
14-307TR	Split-Eye Needle for 14-307, Truck
14-317R	Split-Eye Needle for 14-317, Passenger
14-317TR	Split-Eye Needle for 14-317, Truck



Miscellaneous Tools

14-310	Power-Awl
14-925	4-in-1 T-Handle Tool (rasp, open-eye, closed-eye, and split-eye needles)

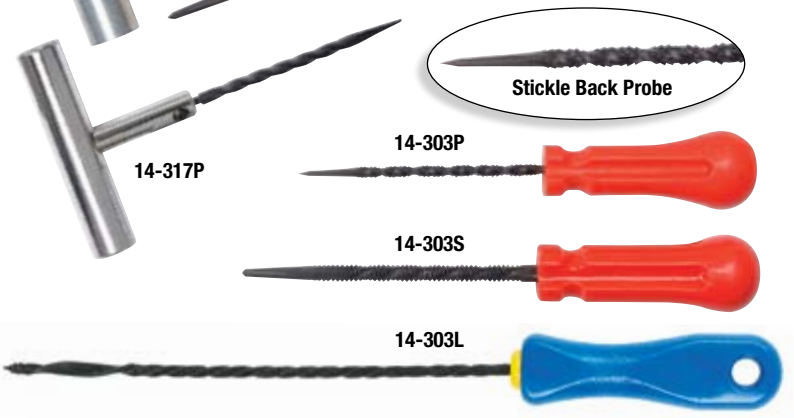




Part Number	Description

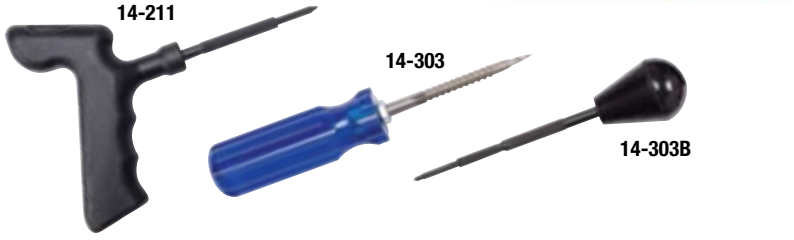
Spiral Cement Probes

14-204	Pistol-Grip Spiral Cement Probe
14-204S	Pistol-Grip Spiral Cement Probe, Knurled
14-218	Die-Cast T-Handle Spiral Cement Probe
14-218H	Die-Cast Handle for 14-218
14-304T	T-Handle Spiral Cement Probe, 7" probe
14-317P	Chrome T-Handle Spiral Probe



Stickle Back Probes

14-303P	1/8" Stickle Back Probe, 3 5/8" probe
14-303S	1/4" Stickle Back Probe, 4" probe
14-303L	1/4" Stickle Back Probe, 10" probe

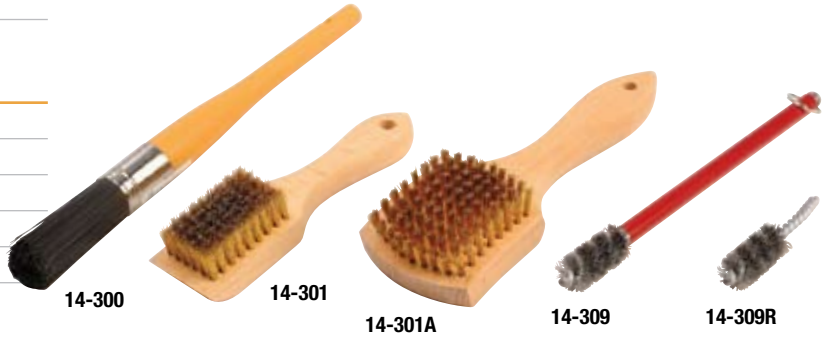


Rasps

14-211	Pistol-Grip 2-Stage Rasp
14-303	Carbide Power-Rasp
14-303B	Ball Handle 2-Stage Rasp

Replacement Probes and Rasps

14-211R	2-Stage Rasp for 14-218H
14-218R	Spiral Cement Probe for 14-218H
14-303R	Carbide Rasp for 14-303
14-317S	Spiral Cement Probe for 14-317



Brushes

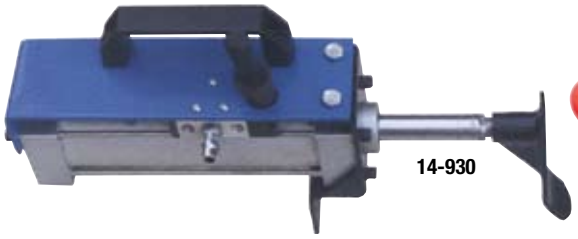
14-300	Retreaders' Brush
14-301	Small Brass Sidewall Tire Brush
14-301A	Large Brass Sidewall Tire Brush
14-309	Multi-Purpose Rim Brush
14-309R	Replacement Brush for 14-309

Skiving Knives

14-302	Curved, Pointed Skiving Knife
14-302R	Replacement Blades for 14-302 (Pack of 2)
14-305	Flexible Skiving Knife
14-306	Rigid, Tapered Skiving Knife
14-306A	Curved Skiving Knife

Part Number	Description
Stitchers and Scrapers	
14-308	Buffer - Stitcher
14-314	3/16" x 1 1/2" Wood Handle Stitcher
14-314A	1/4" x 2" Wood Handle Stitcher
14-314T	1/8" x 1 1/2" Economy Stitcher
14-314W	1 1/2" x 1 1/2" Wood Handle Stitcher
14-315	Blade Style Inner Liner Scraper
14-315B	Replacement Blade for 14-315
14-315H	Hoe Style Inner Liner Scraper

Crayons and Paint Sticks	
14-551	Yellow Markall Paint Stick, 3/4" Round
14-552	Yellow Crayon, 1/2" Hex
14-553	White Paint Stick, 1/2" Hex
14-554	White Markall Paint Stick, 3/4" Round
14-555	Crayon Holder for 14-552 & 14-553



Tire Spreaders and Accessories	
14-930	Pneumatic Tire Spreader (Spreads beads up to 15.75")
14-985	Work Lamp for Branick Tire Spreaders
14-988	M-1 Style Manual Truck Tire Spreader
14-989	Top Post Mounting Passenger Tire Spreader
14-989A	Rim Clamp Adapter Plate for Top Post Spreader
14-966	TireJim Tire Repair Center

Tire and Tube Test Tank	
14-955	Standard Tire and Tube Test Tank Inside Dimensions: 31" x 12.75" x 12.75"
14-956	Large Tire and Tube Test Tank Inside Dimensions: 35" x 15.5" x 17"

14-966
TireJim Tire Repair Center

Keeps all of your repair supplies and tools readily available, reducing the amount of time needed to perform a repair.

Made of heavy duty steel construction and finished with a durable, red powder coat. Comes complete with stand, tire spreader, chemical tray, tool tray, patch and plug storage tray, and two separate storage trays for patches.
Height = 34"; Weight = 42 lbs.

Always wear eye protection when operating air tools.

AIR TOOLS AND ACCESSORIES

Performing a quality tire repair begins with using the right tools. Whether you are performing a small puncture repair or a larger section repair, we make available a wide range of quality air tools and accessories to do the job right.

Part Number	Description

St. Louis Pneumatic Air Tools

14-319LS	Low Speed Buffer with Quick Change; 2,500 rpm
14-319LSL	Lighted Low Speed Buffer with Quick Change; 2,500 rpm
14-325	High Speed Buffer with 3/8” Jacobs; 20,000 rpm
14-325L	Lighted High Speed Buffer with 3/8” Jacobs; 20,000 rpm
14-325LR	Replacement Light Bulbs for Lighted Tools, Pack of 3
14-326	1/2" Reversible Air Drill, 500 rpm
14-329	Exhaust Hose Kit for USA Buffers, 1/4" NPT

St. Louis Pneumatic now offers several models of pneumatic power tools that incorporate incandescent lamps to deliver light at the work surface of the tools.

14-319LS

14-325

14-319LSL

14-325L

14-326

14-329

All St. Louis Pneumatic tools are covered by a 12-month warranty. Any tool in need of repair outside of this warranty period can be repaired for a nominal charge.

Air Tools and Accessories

14-318	**Mighty-Mite Variable Speed Buffer Kit:** 1 ea. air buffer, 1 ea. 14-318H, 1 ea. 14-318R, 1 ea. 14-320, 1 ea. 14-324S
14-318H	24” x 3/8” Swivel Hose, 1/4” NPT
14-318R	In-Line Air Regulator, 1/4" NPT
14-318S	3/8" Barbed Swivel, 1/4" NPT
14-319	High Speed Buffer with 3/8” Jacobs; 20,000 rpm
14-319LSQ	Low Speed Buffer with Quick Change; 2,500 rpm
14-319LST	Low Speed Buffer with 3/8” Jacobs; 2,500 rpm
14-399	**Quick Spiff Air Powered Vacuum:** one-piece vacuum, 3" (76mm) dust brush, 9" (228mm) crevice tool, 16" (406mm) hose

14-318

14-399

14-319

14-319LSQ

14-318H

14-319LST

14-318R

14-318S

Adapters, Chucks and Safety Glasses

14-324	Long Arbor Adapter, 3/8” Threads
14-324C	1/8" Collet Adapter
14-324L	3/16" Collet Adapter
14-324S	Short Arbor Adapter, 3/8” Threads
14-327	Jacob’s Chuck and Key, 3/8" NPT
14-328	Quick Change Chuck, 3/8" NPT
14-330	Short Quick Change Adapter, 3/8” Threads
14-331	Long Quick Change Adapter, 3/8” Threads
14-332	Quick Change Adapter for 1/8” (3.2mm) Shank
14-333	Quick Change Adapter for 3/16” (4.8mm) Shank
14-334	Quick Change Adapter for 1/4” (6.3mm) Shank
14-335	Quick Change Adapter for 5/16” (7.9mm) Shank
14-802	Safety Glasses

14-802

14-327

14-330

14-331

14-332

14-333

14-334

14-335

14-328

14-324C

14-324L

14-324

14-324S

Always wear eye protection when operating air tools and buffing wheels.

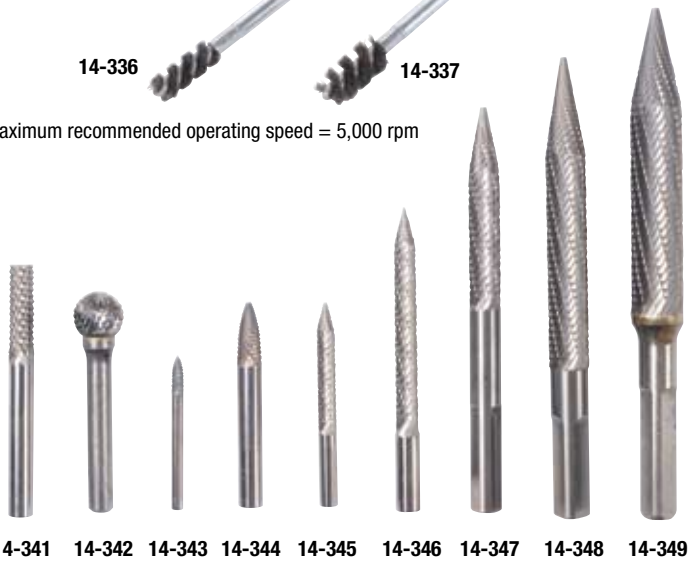
Wire Brushes

Part Number	Description	Arbor Hole
14-321	2 1/2" Coarse Wire Wheel	3/8" (9.5mm)
14-321S	2" Coarse Wire Wheel	3/8" (9.5mm)
14-322	3" Soft Wire Wheel	3/8" (9.5mm)
14-323	2" Plastic Encased Wheel	3/8" (9.5mm)
14-336	3/8" Skiving Brush	1/4" Shank
14-337	1/2" Skiving Brush	1/4" Shank

Maximum recommended operating speed = 5,000 rpm

Carbide Burrs

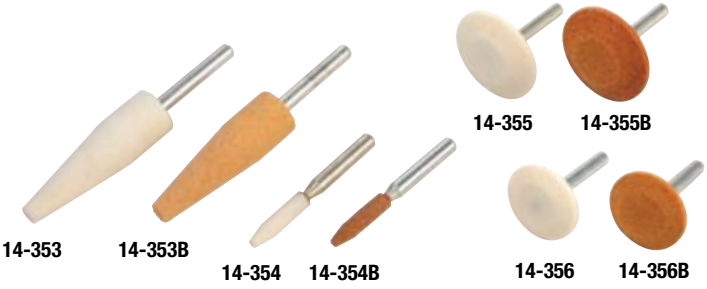
Part Number	Description	Q.C. Adapter
14-341	1/4" (6.3mm) Barrel Burr	14-334
14-342	1/2" (12.7mm) Ball Burr	14-334
14-343	1/8" (3.2mm) Pointed Burr	14-332
14-344	1/4" (6.3mm) Pointed Burr	14-334
14-345	3/16"(4.5mm) Carbide Cutter	14-333
14-346	7/32" (5.5mm) Carbide Cutter	14-334
14-347	5/16" (7.7mm) Carbide Cutter	14-335
14-348	13/32" (10.3mm) Carbide Cutter	–
14-349	1/2" (13mm) Carbide Cutter	–



Maximum recommended operating speed = 1,200 rpm

Oxide Stones

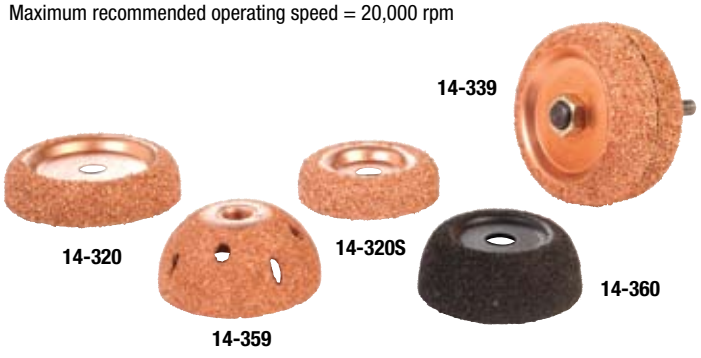
Part Number		Description	Shank Diameter
14-353	A-1	Large Pencil Stone, White	1/4" (6.3mm)
14-353B	A-1	Large Pencil Stone, Brown	1/4" (6.3mm)
14-354	A-15	Small Pencil Stone, White	1/4" (6.3mm)
14-354B	A-15	Small Pencil Stone, Brown	1/4" (6.3mm)
14-355	A-36	1 5/8" Lg. Mushroom Stone, White	1/4" (6.3mm)
14-355B	A-36	1 5/8" Lg. Mushroom Stone, Brown	1/4" (6.3mm)
14-356	A-37	1 1/4" Sm. Mushroom Stone, White	1/4" (6.3mm)
14-356B	A-37	1 1/4" Sm. Mushroom Stone, Brown	1/4" (6.3mm)



For use in high speed grinders to trim wire cord ends.
Maximum recommended operating speed = 20,000 rpm

Buffing Wheels

Part Number	Description	Arbor Hole
14-320	2 1/2" Buffing Wheel, BC-1	3/8" (9.5mm)
14-320S	2" Buffing Wheel, BC-2	3/8" (9.5mm)
14-339	Back-to-Back 14-320 Wheels	3/8" (9.5mm)
14-359	2" Dome Buffing Wheel, 60 Grit	3/8" - 24 Thread
14-360	2" Black finishing cup, 60 Grit	3/8" (9.5mm)



Maximum recommended operating speed = 5,000 rpm

Silver Carbide Buffing Wheels

Part Number	Description	Arbor Hole
14-364	2" Dome, 170 SSG (60 Grit)	3/8" - 24 Thread
14-365	2 1/2" Cup, 170 SSG (60 Grit)	3/8" (9.5mm)
14-367	2 1/2" Cup, 230 SSG (36 Grit)	3/8" (9.5mm)
14-368	4" Cup, 390 SSG (16 Grit)	3/4" (19mm)

Maximum recommended operating speed = 5,000 rpm

Maximum recommended operating speed = 5,000 rpm
Regritting available for rasps and cups – ask for details

Round Faced Buzzout Wheels

Part Number	Diameter	Width	SSG (Grit)	Arbor Hole
14-371	1 3/8" (35mm) Rotor Saw		330 (16 Grit)	1/4" Shank
14-373	7/8" (22mm) Ball		390 (16 Grit)	1/4" Shank
14-374	2" (51mm)	1/4" (6mm)	230 (36 Grit)	3/8" - 24 Thread
14-374A	2" (51mm)	1/4" (6mm)	390 (16 Grit)	3/8" - 24 Thread
14-375	2" (51mm)	3/8" (9mm)	230 (36 Grit)	3/8" - 24 Thread
14-375A	2" (51mm)	3/8" (9mm)	390 (16 Grit)	3/8" - 24 Thread
14-376	2" (51mm)	1/2" (13mm)	230 (36 Grit)	3/8" - 24 Thread
14-376A	2" (51mm)	1/2" (13mm)	390 (16 Grit)	3/8" - 24 Thread
14-377	2" (51mm)	3/4" (19mm)	230 (36 Grit)	3/8" - 24 Thread
14-377A	2" (51mm)	3/4" (19mm)	390 (16 Grit)	3/8" - 24 Thread

14-371

14-373

14-374

14-374A

14-375

14-375A

14-376

14-376A

14-377

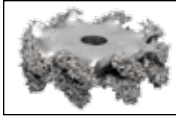
14-377A

Rasps

Piranha Rasps – *Less expensive than standard round faced rasps*

14-382	2" (51mm)	1/2" (13mm)	16 Grit	3/8"

14-382


Double stack for 3/4" buffing width

Flat Faced Rasps

14-383	2" (51mm)	3/16" (5mm)	16 Grit	3/8" - 24 Thread
14-383A	2" (51mm)	3/16" (5mm)	36 Grit	3/8" - 24 Thread
14-384	2" (51mm)	1/4" (6mm)	16 Grit	3/8" - 24 Thread
14-384A	2" (51mm)	1/4" (6mm)	36 Grit	3/8" - 24 Thread

14-383

14-383A

14-384

14-384A

Round Faced Rasps

14-385	2" (51mm)	1/2" (13mm)	16 Grit	3/8" - 24 Thread
14-385A	2" (51mm)	1/2" (13mm)	36 Grit	3/8" - 24 Thread
14-386	2" (51mm)	3/4" (19mm)	16 Grit	3/8" - 24 Thread
14-386A	2" (51mm)	3/4" (19mm)	36 Grit	3/8" - 24 Thread

14-385

14-385A

14-386

14-386A

Pencil and Tapered Cone Rasps

14-390	2 1/2" (64mm)	1/4" (6mm)	16 Grit	1/4" Shank
14-390A	2 1/2" (64mm)	1/4" (6mm)	36 Grit	1/4" Shank
14-393	2" (51mm)	3/4" (19mm)	16 Grit	3/8" - 24 Thread
14-393A	2" (51mm)	3/4" (19mm)	36 Grit	3/8" - 24 Thread
14-394	4" (102mm)	3/4" (19mm)	16 Grit	3/8" - 24 Thread
14-394A	4" (102mm)	3/4" (19mm)	36 Grit	3/8" - 24 Thread

14-390

14-390A

14-393

14-393A

14-394

14-394A

Contour Cups

14-396	3" (76mm)	1" (25mm)	16 Grit	3/8"
14-396A	3" (76mm)	1" (25mm)	36 Grit	3/8"
14-397	3" (76mm)	1 1/2" (38mm)	36 Grit	3/8"
14-397A	3" (76mm)	1 1/2" (38mm)	60 Grit	3/8"
14-398	4" (102mm)	1 1/2" (38mm)	36 Grit	1/2"
14-398A	4" (102mm)	1 1/2" (38mm)	60 Grit	1/2"

14-396

14-396A

14-397

14-397A

14-398

14-398A

Part Number	Description	Arbor Hole	Box Qty
Rotary Gouges			
14-401	3/4" Micro	3/8"-24 Thread	4
14-402	1 1/4" Mini	3/8"	3
14-404	2" Thin Walled	3/8"	2
14-405	2" Thin Walled, Notched	3/8"	2
14-408	2" Thin Walled	1/2"	2
14-411	2" Heavy Walled, Notched	1/2"	1
14-412	1/2" to 3/8" Reducer Washer		

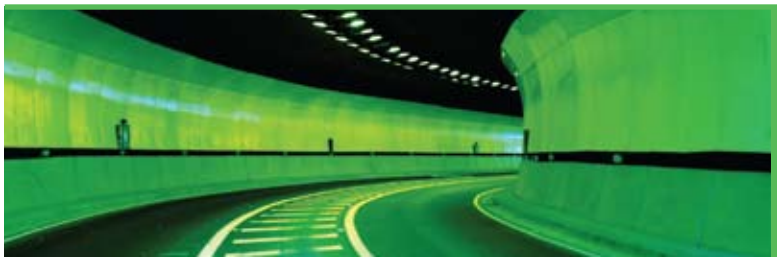
Always wear eye protection when operating air tools and buffing wheels.

14-401

14-402

14-404 and 14-408

14-405 and 14-411



TIRE MOUNTING TOOLS AND ACCESSORIES

We offer the most popular tools and accessories for your tire mounting and demounting needs. Quality products at competitive prices – this is our commitment to you.

Mount / Demount Heads

31 Inc. Part Number	OEM	OEM Part Number	Tire Changer Model
14-9682	Stainless Steel Head with Round Hole		
	Coats	8183429	RC 1, 5, 10, 15, 20, Early 5060
	Corghi	258458	All Models
14-969	Nylon Head		
	Accuturn	20024335	3402, 3602, 3602HP, 4260, 4560MR, 4602, 5602, 5602 HP
	Hofmann	24335	1520, 1565, 1620, 1625, 1625EM, 3300, 3300EM Monty 1270, 2300, 3000, 3000GP
	John Bean	24335	EHP System IVE, IV, III, IIE
	Snap On	24335	All Models
14-9691	Nylon Head Kit		
	Accuturn	14024784	3602, 3602HP, 4260, 4560MR, 4602, 5602, 5602 HP
	Hofmann	4024784	1520, 1565, 1620, 1625, 1625EM, 3300, 3300EM Monty 1270, 2300, 3000, 3000GP
	John Bean	EAA 0247G20A	EHP System IVE, IV, III, IIE
	Snap On	EAA 0247G20A	All Models
14-970	Nylon Head Kit with Tapered Hole		
	Coats	8183061	5030, 5040, 5050, 5060, 5065, 6050, 6060, 6065, 7050, 7055, 7060, 7065, 7655, 7660, 7665
14-9702	Stainless Steel Head with Tapered Hole For Coats		
	Coats	8182788	5030, 5040, 5050, 5060, 5065, 5070, 6050, 6060, 6065, 7050, 7055, 7060, 7065, 7655, 7660, 7665
14-971	Nylon Head with Round Hole Head Only		
	All Tool	G3008403	
	Coats	83008403	RC 1, 5, 10, 15, 20, Early 5060, 9010, 9024, APX90
	Corghi	450310	All Rim Clamp (Optional Accessory)
	Hofmann	8314813	All Earlier Models Except 1550, 1620, 1625
	Hunter	RP11-8314813	TCX Series
	Sice	8314813	M39, S40, S41, S42, S43, S45, S408MAXI, S435, S436, S436TOP
14-9711	Nylon Head Kit with Round Hole		
	All Tool	G2008401	All Models
	Coats	82008402	RC 1, 5, 10, 15, 20, Early 5060, 9010, 9024, APX90
	Corghi	250309	All Rim Clamp (Optional Accessory)
	Hofmann	2200981	All Earlier Models Except 1550, 1620, 1625
	Sice	2200981	M39, S40, S41, S42, S43, S45, S408MAXI, S435, S436, S436TOP
14-972	Nylon Head		
	Accuturn	SM102529	220A, All Other Models Require 102765 Adapter
	Hunter	RP6 0343B	TC 250, TC 300, TC325, TC350

14-9682

14-969

14-9691

14-970

14-9702

14-971

14-9711

14-972

31 Inc. Part Number	OEM	OEM Part Number	Tire Changer Model

Stainless Steel Inserts and Booties

14-973	Plastic Insert for 14-9702 and 14-9682 Stainless Steel Heads - (12 Pack)		
14-973-2	Plastic Insert for 14-9702 and 14-9682 Stainless Steel Heads - (2 Pack)		
	Coats	8182961 (2 Pack) 8182963 (12 Pack)	RC 1, 5, 10, 15, 20, Early 5060 5030, 5040, 5050, 5060, 5065, 5070, 6050, 6060, 6065, 7050, 7055, 7060, 7065, 7655, 7660, 7665
14-974	Plastic Inserts for Mount and Demount Head (10 Pack) Includes Allen Wrench		
	Coats	89209611	RC 1, 5, 10, 20, 9010, 9024
	Corghi	254341A	2024, 9220, 9824
14-975	Plastic Inserts for Mount and Demount Head (10 Pack)		
	Accuturn	20011064	3402, 3450, 3602, 4602, 5802HP, 5850HP, 5602
	Hofmann	ST4024181	All Models
	Snap-On	EAA0247G15A	All Models
14-976	Small White Mount Bootie for Coats Combo Tool 14-978 (10 Pack)		
14-977	Large White Demount Bootie for Coats Combo Tool 14-978 (10 Pack)		

14-973 and 14-973-2

14-974

14-975

14-976

14-977

Jaws, Clamping Kits

14-958	**3 Position Extended X-Clamp Kit** for Coats X-Models With Adjustable Carriers. External (Outside / In) Wheel Clamping 6" - 22" Wheels Kit Includes: Position Push Buttons (4 Pcs.), 3 Position X-Clamp (4 Pcs.)		
	Coats	8113125C	50X, 60X, 70X
14-959	**24" X-Out Clamp Kit** for Clamping 23" and 24" Alloy Wheels 13" - 24" Range. 2 Position Clamps. Outside Clamping Only. Kit Includes: 24" X-Out Clamps (4 Pcs), Position Push Buttons (4 Pcs), 14-960 Quilted Clamp Socks (10 Pcs.)		
	Coats	8184327	50X, 60X, 70X
14-960	**Quilted Clamp Socks** for Jaws and Coats Rim Clamp Tire Changers (10 Pack)		
	Coats	8183604	All Tire Changers Except 9010 and 9024E

14-958

14-959

14-960

Part Number	Description

Tire Changer Accessories

14-931	Bead Lifting Tool
14-932	Long Sock for 14-931 Bead Lifting Tool, Pack of 4
14-978	Mount / Demount Combo Tool For Coats 4040, 4050, and other Center Post Changers
14-979	MX Mounting Clamp for Mounting Low Profile Tires For Use with Rim Clamp Tire Changers

14-931

14-932

14-979

14-978

Part Number	Description

Miscellaneous Tools

14-983	32 oz. Rubber Mallet

14-983

Ken-Tool™ offers a complete line of tire changing tools, bead breaking tools, lug wrenches, rim service tools, and specialty tools. For your convenience we offer the most popular tools used in the industry today.

Any Ken-Tool™ item not listed is available by special order. Ask for details.

Wrenches

Part Number	EDP No.	Description	Socket Sizes	Length	Stock	Weight
Professional Gold 4-Way						
14-T57	35657	Passenger	3/4", 13/16", 7/8", 15/16"	23" (58.4cm)	5/8" (16mm)	4 3/4 lbs. (2.0kg)
Standard Professional 4-Way						
14-T59	35659	Passenger	3/4", 13/16", 7/8", 15/16"	22" (55.9cm)	5/8" (16mm)	4 1/2 lbs. (1.9kg)
14-T90	35690	Light Truck	7/8", 15/16", 1", 1 1/16"	25" (63.5cm)	3/4" (19mm)	6 1/2 lbs. (3.2kg)
Heavy Duty Truck 4-Way						
14-T95	35695	Truck	1 1/16", 1 1/4", 1 1/2", 13/16" sq.	27 1/2" (69.9cm)	1" (25mm)	13 3/4 lbs. (6.2kg)
Cap Nut Wrenches						
14-TX9	30609	SAE and Metric	1 1/2" (38mm)			.4 lbs. (.1kg)

14-TX9

Bead Breaking Tools and Hammers

Part Number	EDP No.	Description	Length	Weight
14-T11D	35327	Wood Handled Wedge	17" (43.2cm)	4 3/4 lbs.
14-T11E	35329	Wood Handled Wedge	30" (76.2cm)	8 1/2 lbs.
14-TG11D	35427	Fiberglass Handled Wedge	18" (45.7cm)	4 3/4 lbs.
14-TG11E	35429	Fiberglass Handled Wedge	32" (81.3cm)	8 1/2 lbs.
14-T26A	32126	Driving Iron	11 3/4" 1 1/4" (29.9cm) (32cm)	3 3/4 lbs.
14-T26B	35926	Impact Bead Breaker	50" - 80" (127.0cm-203.2cm)	24 lbs.
Tire Hammers with Fiberglass Handle				
14-TG35	35423	Head Wt. 4 3/4 lbs. (2.2kg)	18" (45.7cm)	7 lbs. (3.2kg)
Replacement Parts				
14-T11EH	35129	Hickory Handle	30" (76.2cm)	1 1/4 lbs.
14-TG11EH	35229	Fiberglass Handle		
14-T34RH		Rubber Head for TG35		

14-T26A

14-T26B

14-TG35

WARNING

STRUCK TOOLS, BEAD BREAKERS AND WEDGES
Striking and struck tools can break or chip. Chipped or mushroomed ends can fragment. Wear safety goggles. Replace damaged tools.

HAMMERS
Always wear safety goggles when using striking or struck tools. Never use one hammer to strike another hammer. Never use a striking tool with loose or damaged handle. Discard any striking or struck tool if tool shows dents, cracks, chips or mushrooming.

Any Ken-Tool™ item not listed is available by special order. Ask for details.

14-T68

Wheel Cover Puller

Removes wheel covers quickly and easily without gouging or scratching them. Rubber head T11RH prevents damage to hub cap and is replaceable.

Tubeless Tire Irons

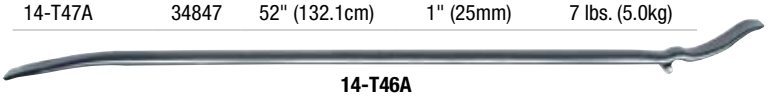
Use on standard and large truck tires, including industrial, farm, buses, and tractors.
Use in pairs.

14-T45A

Tire Mount/Demount Tools

These irons are designed for fast and efficient tire changing. Use the 18" and 24" spoons to mount or demount passenger car, motorcycle, ATV, and light truck tires. The 30" spoons provide enough strength and leverage to work on large truck, bus, off road vehicle, tractor and aircraft tires. Use in pairs.

Part Number	EDP No.	Length	Stock	Weight
Wheel Cover Puller				
14-T68	31568	14" (36cm)	7/16" (11.1mm)	1 1/4 lbs. (.6kg)
Tubeless Tire Irons				
14-T45A	34645	37" (94.0cm)	3/4" (19mm)	4 1/2 lbs. (2.0kg)
14-T45A-2000K	34644	37" (94.0cm)	3/4" (19mm)	5 lbs. (2.2kg)
14-T45HD	34647	41" (104.1cm)	7/8" (22mm)	7 lbs. (3.2kg)
14-T46A	34747	36" (91.4cm)	3/4" (19mm)	4 1/2 lbs. (2.0kg)
14-T47A	34847	52" (132.1cm)	1" (25mm)	7 lbs. (5.0kg)



14-T46A

Straight Tire Spoons				
14-T19	32119	24" (61.0cm)	11/16" (17.5mm)	2 1/2 lbs. (1. kg)
14-T19A	33219	30" (76.2cm)	11/16" (17.5mm)	3 lbs. (1.4kg)
Curved Tire Spoons				
14-T2X	32102	18" (45.7cm)	11/16" (17.5mm)	1 3/4 lbs. (.3kg)
14-T20	32120	24" (61.0cm)	11/16" (17.5mm)	2 1/4 lbs. (1.0kg)
14-T20A	33220	30" (76.2cm)	11/16" (17.5mm)	3 lbs. (1.4kg)
Drop-Center Tire Spoons				
14-T21F	34121	24" (61.0cm)	11/16" (17.5mm)	2 1/2 lbs. (1.1kg)
14-T21R	32121	18" (45.7cm)	11/16" (17.5mm)	1 3/4 lbs. (.3kg)
Small Tire Tools				
14-T6A	32106	16 1/2" (42cm)	5/8" (16mm)	1 1/2 lbs. (.7kg)
14-T9A	32109	9" (23cm)	7/16" (11mm)	.4 lbs. (.16kg)

14-T2X

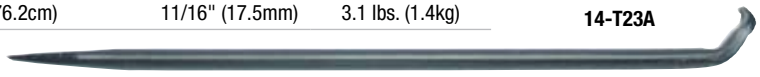
14-T21R

14-T9A

Lock Ring Tools

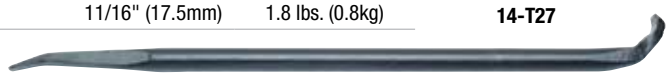
These tools are designed to remove lock rings on most trucks on the road today. A must-have for anyone mounting or demounting multi-piece rims. Use in pairs.

Part Number	EDP No.		Length	Stock	Weight
Truck Lock Ring Remover					
14-T23A	33223	Designed for smaller diameter wheels			
		30" (76.2cm)		11/16" (17.5mm)	3.1 lbs. (1.4kg)



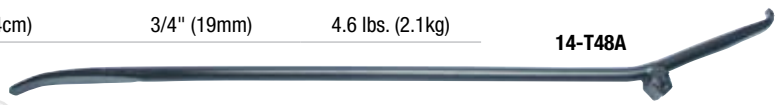
14-T23A

Special Lock Ring Tool					
14-T27	32127	Long tapered curved end for continuous side rings.			
		18" (45.7cm)		11/16" (17.5mm)	1.8 lbs. (0.8kg)



14-T27

Heavy Duty Lock Ring Tool					
14-T48A	34648	Use for multi-piece wheels, especially hub type.			
		37" (94cm)		3/4" (19mm)	4.6 lbs. (2.1kg)



14-T48A

"Donut-Style" Mounting Rings

Donut-style mounting rings are a simple, yet effective mounting device that fits over the rim between the bead and rim flange, creating a seal. As the tire expands, the mounting ring slides out over the rim allowing the beads to fully seat.

NOTE: O.S.H.A. regulations require that service personnel use a clip-on air chuck with an inline inflator at a recommended distance that keeps the employee out of the trajectory of the tire and rim. After beads are seated, put tire and rim into approved inflation cage and continue to inflate to prescribed air pressure.

Part Number	Description	Diameter
14-990	For 13" Rims	1 3/4"
14-991	For 14" - 15" Rims	1 3/4"
14-992	For 16" - 17" Rims	1 1/8"
14-993	For 19.5" Rims	1 1/8"
14-994	For 22.5" - 24.5" Rims	1 1/8"
14-995	For 15" Rims	1 3/4"
14-996	For 16" Rims	1 3/4"
14-997	For 17" Rims	1 3/4"
14-998	For 18" Rims	1 3/4"
14-999	For 20" Rims	1 3/4"

Cheetah Bead Seater

The **5-gallon Cheetah Bead Seater** makes seating the most difficult bead not only safe but simple, fast and economical. As the most popular bead seater model, the CH-5 has an ASME certified tank designed for commercial use on all tires, ATV to 24.5" truck tires, and is now available in lighter weight aluminum. The optional Magnum Barrel I is helpful in seating the beads on larger diameter wheels due to a wider distribution of the air blast.

The **10-gallon Cheetah Bead Seater** will seat the bead on all truck and small tractor tires. ASME certified tank. Also available in lighter weight aluminum. The optional Magnum Barrel II is helpful in seating the beads on larger diameter wheels due to a wider distribution of the air blast.

The **13-gallon Magnum Aluminum Bead Seater** can be used either in the shop with the necessary parts when the tire is horizontal or vertical, or as a field unit where the tires remain on the equipment. The included Magnum Barrel II is helpful in seating the beads on larger diameter wheels due to a wider distribution of the air blast.

Part Number	Description	Shipping Weight
14-CH5	5-Gallon Cheetah with Steel Tank	24 lbs.
14-CH5AL	5-Gallon Cheetah with Aluminum Tank	18 lbs.
14-CH10	10-Gallon Cheetah with Steel Tank	35 lbs.
14-CH10AL	10-Gallon Cheetah with Aluminum Tank	24 lbs.
14-CH13ALM	13-Gallon Cheetah with Aluminum Tank Includes Regular Barrel and Magnum II Barrel	35 lbs.

O-RINGS AND L-RINGS FOR TUBELESS RIMS

Many earthmover, grader, agricultural, and industrial tires require the use of O-rings or L-rings to achieve an air-tight seal. We offer only the highest quality products to meet this need.

O-Rings

Part Number	Tire Type	Rod Diameter	Rim Size	Bag Qty
16-120JM	Highway (JM)	0.250"	20"	2
16-122JM	Highway (JM)	0.250"	22"	2
16-124JM	Highway (JM)	0.250"	24"	2
16-1220TG	Grader	0.250"	20"	2
16-1224TG	Grader	0.250"	24"	2
16-125T	Earthmover	0.250"	25"	2
16-1325T	Earthmover	0.375"	25"	2
16-1329T	Earthmover	0.375"	29"	2
16-1333T	Earthmover	0.375"	33"	2
16-1335T	Earthmover	0.375"	35"	2
16-1345T	Earthmover	0.375"	45"	2
16-1349T	Earthmover	0.375"	49"	2
16-1451T	Earthmover	0.500"	51"	2
16-1457T	Earthmover	0.500"	57"	2

O-Rings for Earthmovers

- High quality polysoprene rubber
- Manufactured to OEM specifications

Part Number	Rim Size	Bag Qty
L-Rings		
16-225	25"	2
16-229	29"	2
16-233	33"	2
16-235	35"	2
16-239	39"	2
16-245	45"	2
16-249	49"	2
16-251	51"	2
16-257	57"	2
16-263	63"	2

L-Rings for Earthmovers

- Creates an air seal where the bead and rim seat are not completely compatible
- *Not a cure for damaged beads or damaged wheels and rims. Caution should be used during fitments. Do not install where a broken bead is suspected.*

WHEEL BALANCING

Whether you use traditional wheel weights or new internal balancing compounds, balancing the wheel assembly is vital to long tire life, vehicle performance, and safety. Here are some basic items to help accomplish this task.

Part Number	Description
Wheel Weight Tools	
14-904	Wheel Weight Pliers
14-905	Wheel Weight Pliers
14-906	Heavy-Duty Wheel Weight Pliers
14-907	No-Mar Wheel Weight Pliers for Aluminum Rims
14-907R	Replacement Tip for 14-907
14-909	Stick on Wheel Weight Remover

Wheel Balancer Cones and Spacers

Part Number	Description
14-94705-28	28mm Cone; 1.75" - 2.58" Range
14-94710-28	28mm Cone; 2.25" - 2.62" Range
14-94715-28	28mm Cone; 2.44" - 3.06" Range
14-94725-40	40mm Cone; 3.375" - 5.25" Range
14-94730-40	40mm Cone; 3.375" - 5.88" Range
14-94735-40	40mm Cone; 5.03" - 6.88" Range
14-94750-40	40mm Wheel Balancer Spacer/Backing Plate

14-94705-28

14-94750-40

28mm Cones and Spacers Fit

Accuturn	5223, 5500, 5100 & 5600 (Serial 51-0001 to 51-0622)
Coats	All Models (Excluding 6401)
Mondolfo Ferro	All Models (Excluding Truck Balancers)
Norton	All Models
Snap-On	All Models
Sun	1742, 1762

40mm Cones and Spacers Fit

Accuturn	1200, 1250, 1400, 1500, 1550, 1650, 1850, 5100 & 5600 (Serial 51-0623 to 51-1457)
Bear	80-100, 80-303
Beissbarth	All Models
CEMB	Truck Balancers Since June 2000
Coats	With Optional 40mm Shaft
ALL Models On	FMC, Hofmann, Hunter, John Bean, Kwik-Way, Performance, Phoenix CB-113

Wheel Balancer Accessories

14-936	Manual Hub Nut for Coats Wheel Balancers for Coarse Thread Shaft 28.5mm
14-939	Rim Width Caliper

14-936

14-939

Bubble Balancer

Rugged die-cast aluminum head cone; plated steel guide rods with zinc chromate helper springs; hardened cast-in-place pivot seat; recessed circular level bubble. Shaft is made from tough 6061 extruded aluminum ASTM B 221; hardened pivot pin for long wear; heavy duty cast aluminum base.

Part Number	Description
14-961	Bubble Balancer
14-962	Circular Level (Bubble) for 14-961
14-963	Pivot Pin for 14-961
14-964	Shaft (Includes 2 Nuts and 2 Washers) for 14-961
14-965	3/4 and 1 Ton Adapter for 14-961

14-961

Hub hole diameter	1.5" - 4.5" (39 - 114.3mm)
Bubble sensitivity	.788 sec. per 2mm
Overall height	22" (559mm)
Overall width	12" (305mm)
Overall weight	14 lbs. (6.35 kg)
Boxed dimensions	11.75" x 18" x 6.75" (298mm x 457mm x 171mm)

Calibrated at 90˚, 180˚, 270˚, and 360˚

Counteract Balancing Beads

Counteract is an internal balancing compound used to balance the entire wheel assembly. Counteract balances for the complete life of the tire by readjusting the balanced position as required. Benefits of keeping the entire wheel assembly in balance include increased tread life, increased fuel economy, and eliminates wheel vibration.

Contains no powders
Will not clump due to moisture
Will not interfere with tire repair
(remove before beginning repair)
Use with tubeless or tube-type tires

Easy to Use, Bag-in-bag Packaging

Simply open the outer bag, remove the inner bag and throw the inner bag inside the tire before inflating. This method allows the use of an air blaster and will not contaminate the bead seating area.

Part Number	Description	Type of Bead	Case Qty
16-301	1 oz. Passenger (Contains: 4 – 1 oz. Bags)	Steel	40
16-302	2 oz. Passenger (Contains: 4 – 2 oz. Bags)	Steel	32
16-303	3 oz. Passenger (Contains: 4 – 3 oz. Bags)	Steel	24
16-304	4 oz. Heavy Truck	Glass	92
16-305	5 oz. Heavy Truck	Glass	76
16-306	6 oz. Heavy Truck	Glass	64
16-308	8 oz. Heavy Truck	Glass	52
16-310	10 oz. Heavy Truck	Glass	40
16-312	12 oz. Heavy Truck	Glass	36
16-314	14 oz. Heavy Truck	Glass	32
16-316	16 oz. Heavy Truck	Glass	28

WHEEL SERVICE TOOLS AND FASTENERS

We make available a large selection of specialty tire and wheel service tools. The most popular tools available in one place.

Always wear eye protection when operating air tools!

9-Piece Torque Master Kit

The 9-piece torque master kit will tighten wheel nuts to the correct torque, the first time, every time on most makes and models of foreign and domestic cars and light trucks. These tools are designed for use with a 1/2" drive impact wrench and comes in a wall mountable carrying case with wall chart.

14-810

14-820

5-Piece Torque Extension Kit

The 1/2" Drive Wheel Torque Extension Kit will torque wheel nuts on most foreign and domestic cars and light trucks to the correct torque, the first time, every time, with your thin wall or regular lug nut sockets. Since more vehicles every year have tight tolerances around the wheel nuts, this kit will help eliminate damage to wheels when torquing the wheel nuts. This 5-piece kit includes a wall chart and a custom case.

Deluxe Hubcap and Wheel Lock Removal Kit

The Deluxe Hubcap and Wheel Lock Removal Kit safely removes and replaces GM, Ford, and Chrysler wire wheel hubcap locks on 1978 or newer vehicles. Also removes factory and most aftermarket locking lug nuts. Includes instructions and is packaged in a custom carrying case.

14-830

Part Number	Description	
14-810	**9-Piece Torque Master Kit (14-811 – 14-819)**	
14-811	13/16" 100 ft-lbs	Brown
14-812	21mm 80 ft-lbs	Orange
14-813	19mm 100 ft-lbs	Gray
14-814	21mm 60 ft-lbs	Black
14-815	19mm 80 ft-lbs	Blue
14-816	19mm 65 ft-lbs	Yellow
14-817	17mm 80 ft-lbs	Red
14-818	17mm 55 ft-lbs	Green
14-819	7/8" 120 ft-lbs	White
14-819Q	7/8" 140 ft-lbs	Aqua
14-820	**5-Piece Torque Extension Kit (14-821 – 14-825)**	
14-821	100 ft-lbs	Gray
14-822	80 ft-lbs	Blue
14-823	65 ft-lbs	Yellow
14-824	120 ft-lbs	White
14-825	140 ft-lbs	Aqua
14-830	**Deluxe Hubcap and Wheel Lock Removal Kit**	
14-835	**Twist Socket Lug Nut Removal System** Includes: two dual-sided sockets and extractor punch	
14-840	Dual-Sided Twist Socket Lug Nut Remover	
14-840A	400-12 Replacement Socket for 14-830	

Flip Sockets

14-846	3/4" - 13/16"	Thin Walled
14-846A	3/4" - 13/16"	Extra Thin Walled
14-847	19mm - 21mm	Thin Walled
14-847A	19mm - 21mm	Extra Thin Walled
14-848	7/8" - 15/16"	Thin Walled

Sockets for Lug Nut Removal

For the removal of lug nuts that are damaged/rounded because of unsuccessful removal, rust or other damage. The twist socket has a fluted design which gives the socket a tight grip to remove the most difficult lug nuts with easy removal of the lug nut from the socket. Works with a 1/2" impact gun or breaker bar for service calls.

14-835
Twist Socket Lug Nut Removal System

Use for 3/4", 19 mm, 13/16", 21 mm, 7/8" and 15/16" lugnuts

14-840
Dual-Sided Twist Socket Lug Nut Remover

Use for 3/4", 19 mm, 13/16", 21 mm lugnuts

Flip Sockets

14-967 ToolKADDY Express Tire Installation Center

The ToolKADDY is a complete, all-in-one express tire installation center with head, stand, and air manifold (top feed), with two 3/8" x 25' recoil air hose (hose has limited 1 year warranty). Designed for team service, this unit has air supply and holders for two (2) impact guns.

Made of heavy duty steel construction with durable red powder coat finish!

Top head with tray - 11 gauge;
Stand - 3/16" steel; Bottom base - 1/4" steel plate.

14-984 Wheel Gauge

Easily identify the correct bolt pattern on 4, 5, 6, and 8-lug hubs. The set includes 15 colored gauges, each measuring two bolt patterns, for a total of 30 bolt patterns, two conical adapters for use on brake hubs that do not have studs, and a gauge to measure stud diameters. Measures both English and Metric bolt patterns.

14-986
Zafety Lug Lock™

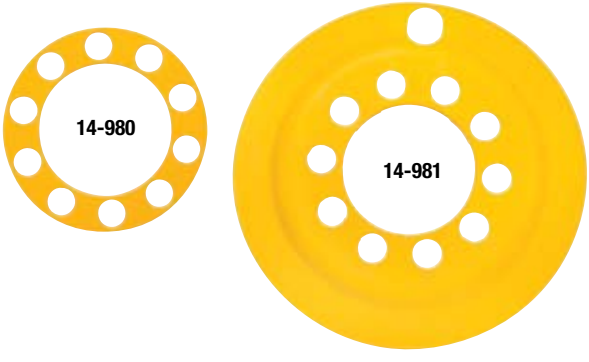
This new and innovative product is setting a new standard for road safety in North America! Other products let you know when a lug nut has loosened but do nothing to ensure that the lug nuts remain torqued properly. Zafety Lug Lock™ is a revolutionary design that incorporates the resistance between two nuts to minimize their ability to rotate, essentially locking them in place!

- Significantly reduces possibility of wheel separation resulting in personal injury, loss of life, property damage, and hefty fines
- Reduces inspection time, resulting in less downtime for vehicles and drivers
- Provides a clear, visual check
- Flexible, easy to install & remove, and re-usable
- Laboratory tested in severe vibration conditions from -40°F to +122°F (-40°C to +50°C)
- Fits 33mm lug nuts on 10-stud piloted wheels with 3.5" stud spacing

Protectors for Aluminum Wheels

Wheel protectors prevent wheel surfaces from being scarred and damaged by tools and other objects. These protectors are made from almost unbreakable polymer compound and are imprinted with torque sequences.

Part Number	Description
14-980	Plastic Rim Guard, Nut Area Only
14-981	Plastic Wheel Shield, Full Wheel Dish

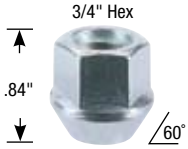


Miscellaneous Tools

Part Number	Description
14-982	Chrome Nut Cover Pliers

14-982

Chrome Lug Nuts

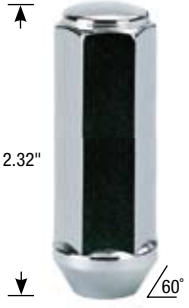


Part Number		Thread Size	Box Qty	Case Qty
Open-End Bulge Acorn				
14-850	7/16	7/16"	50	500
14-850	1/2	1/2"	50	500
14-850	12/1.25	12mm 1.25	50	500
14-850	12/1.50	12mm 1.50	50	500
14-850	12/1.75	12mm 1.75	50	500
14-850	14/1.50	14mm 1.50	50	500
14-850	14/2.00	14mm 2.00	50	500
14-850	9/16	9/16"	50	500

Bulge Acorn, 1.38" Long				
14-857	7/16	7/16"	50	500
14-857	1/2	1/2"	50	500
14-857	12/1.25	12mm 1.25	50	500
14-857	12/1.50	12mm 1.50	50	500
14-857	12/1.75	12mm 1.75	50	500
14-857	14/1.50	14mm 1.50	50	500

Bulge Acorn, 1.75" Long				
14-858	1/2	1/2"	40	400
14-858	12/1.50	12mm 1.50	40	400
14-858	12/1.75	12mm 1.75	40	400
14-858	14/1.50	14mm 1.50	40	400
14-858	14/2.00	14mm 2.00	40	400
14-858	9/16	9/16"	40	400

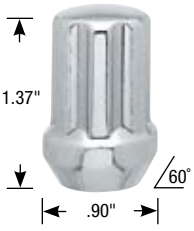
Bulge Acorn, 1.90" Long				
14-859	12/1.50	12mm 1.50	30	300
14-859	12/1.75	12mm 1.75	30	300
14-859	14/1.50	14mm 1.50	30	300
14-859	14/2.00	14mm 2.00	30	300
14-859	9/16	9/16"	30	300



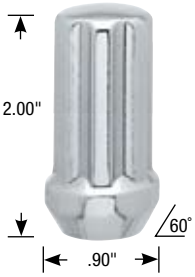
Bulge Acorn, 2.32" Long				
14-860	12/1.75	12mm 1.75	30	300
14-860	14/1.50	14mm 1.50	30	300
14-860	14/2.00	14mm 2.00	30	300

Part Number		Thread Size	Box Qty	Case Qty
Spline Acorn *Use Key Adapter 14-861A or 14-861B*				
14-861	1/2	1/2"	50	500
14-861	12/1.25	12mm 1.25	50	500
14-861	12/1.50	12mm 1.50	50	500
14-861	12/1.75	12mm 1.75	50	500

Open-End Spline *Use Key Adapter 14-861A*				
14-862	1/2	1/2"	50	500
14-862	12/1.25	12mm 1.25	50	500
14-862	12/1.50	12mm 1.50	50	500

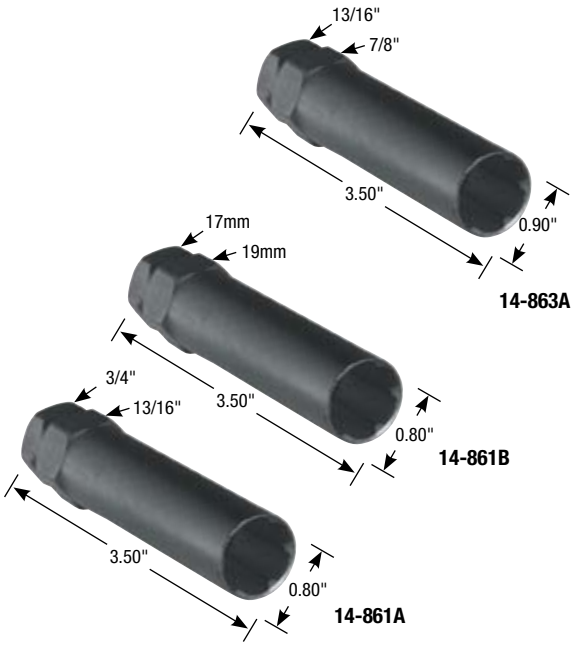


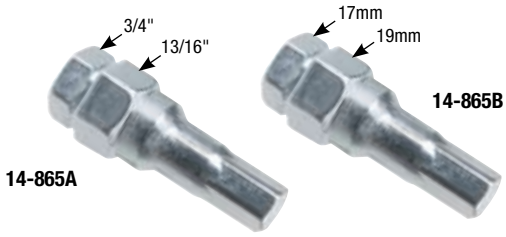
Duplex Short Spline *Use Key Adapter 14-863A*				
14-863	14/1.50	14mm 1.50	50	500
14-863	14/2.00	14mm 2.00	50	500
14-863	9/16	9/16"	50	500



Duplex Spline Acorn Long *Use Key Adapter 14-863A*				
14-864	12/1.50	12mm 1.50	40	400
14-864	12/1.75	12mm 1.75	40	400
14-864	14/1.50	14mm 1.50	40	400
14-864	14/2.00	14mm 2.00	40	400
14-864	9/16	9/16"	40	400

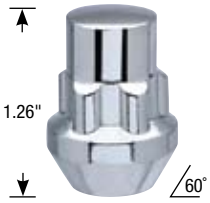
Tuner Acorn Heat Treated *Use Key Adapter 14-865A or 14-865B*				
14-865	1/2	1/2"	50	500
14-865	12/1.25	12mm 1.25	50	500
14-865	12/1.50	12mm 1.50	50	500
14-865	14/1.50	14mm 1.50	50	500



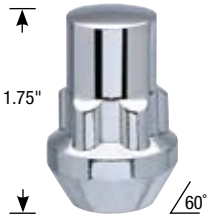


Part Number	Description
Spline and Tuner Adapters	
14-861A	Key Adapter, 3/4" and 13/16" (6 Spline)
14-861B	Key Adapter, 17mm and 19mm (6 Spline)
14-863A	Key Adapter 13/16" and 7/8" (7 Spline)
14-865A	Socket Adapter, 3/4" and 13/16"
14-865B	Socket Adapter, 17mm and 19mm

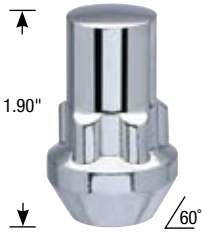
Wheel Lock Sets



Part Number	Thread Size	Box Qty	Case Qty
Bulge Acorn, 1.26" Long			
14-890 7/16	7/16"	6 Sets	60
14-890 1/2	1/2"	6 Sets	60
14-890 12/1.25	12mm 1.25	6 Sets	60
14-890 12/1.50	12mm 1.50	6 Sets	60
14-890 14/1.50	14mm 1.50	6 Sets	60



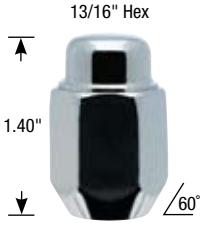
Part Number	Thread Size	Box Qty	Case Qty
Bulge Acorn, 1.75" Long			
14-891 1/2	1/2"	6 Sets	60
14-891 12/1.50	12mm 1.50	6 Sets	60
14-891 12/1.75	12mm 1.75	6 Sets	60
14-891 14/1.50	14mm 1.50	6 Sets	60
14-891 14/2.00	14mm 2.00	6 Sets	60

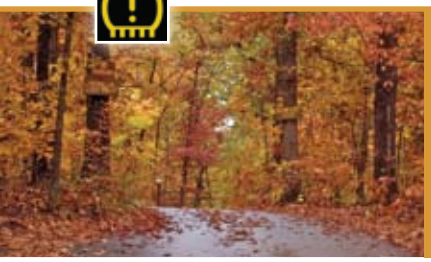


Part Number	Thread Size	Box Qty	Case Qty
Bulge Acorn, 1.90" Long			
14-892 1/2	1/2"	6 Sets	60
14-892 12/1.50	12mm 1.50	6 Sets	60
14-892 12/1.75	12mm 1.75	6 Sets	60
14-892 14/1.50	14mm 1.50	6 Sets	60
14-892 14/2.00	14mm 2.00	6 Sets	60

Part Number	Thread Size	Box Qty	Case Qty
Bulge Acorn, 2.32" Long			
14-893 12/1.75	12mm 1.75	6 Sets	60
14-893 14/1.50	14mm 1.50	6 Sets	60
14-893 14/2.00	14mm 2.00	6 Sets	60

Part Number	Thread Size	Box Qty	Case Qty
2-Piece Acorn			
14-854 7/16	7/16"	50	500
14-854 1/2	1/2"	50	500
14-854 12/1.25	12mm 1.25	50	500
14-854 12/1.50	12mm 1.50	50	500
14-854 14/1.50	14mm 1.50	50	500





TIRE PRESSURE MONITORING SYSTEMS (TPMS)

As of Sept. 1, 2007, all vehicles under 10,000 lbs. GVW, excluding motorcycles and light duty trucks with dual wheels on an axle, are equipped with Tire Pressure Monitoring Systems (TPMS) which must be serviced when tire and wheel service is performed. From diagnostic tools and sensors, to replacement parts kits and accessories, we are able to meet all of your TPMS needs.

17-21305 TPMS Parts Assortment

Part Number	General Application*	Qty
Replacement Parts Kits and Valves		
17-20006AK	GMC, Hummer, Isuzu	10
17-20008	Rubber Snap-In TPMS valve	20
17-20012AK	Prowler & Corvette	10
17-20013AK	Chrysler, Dodge, Jeep	20
17-20015AK	GM with TRW Clamp-In	10
17-20028AK	Chrysler, Dodge, Mitsubishi	20
17-20096AK	Ford	10
17-20107AK	GM	20
17-20198AK	Dodge Sprinter	5
17-20201AK	Chrysler	20

Part Number	Description	Qty
Valve Tools and Accessories		
17-173	Valve Core Torque Tool	1
17-490T	Nickel Plated TPMS Valve Cores	100
17-492L-1	Long Black Plastic TPMS Caps	100
17-492T-1	Gray Plastic TPMS Caps	100

17-21305

Includes all of the necessary component parts to service most TPMS sensors for

- Chrysler
- Ford
- GM

Assortment Includes:

- 145 Replacement Parts Kits
- 100 TPMS Valve Cores
- 200 TPMS Plastic Valve Caps
- TPMS Valve Core Torque Tool
- Application Chart

Each replacement parts kit is barcoded and color coded for easy identification.

The OEM recommends replacing the EPDM grommet, valve cap, valve core, and sensor nut every time a TPMS sensor is removed from the wheel or the wheel is serviced. Worn component parts can cause serious problems. Replacing the critical valve component parts every time ensures an air tight seal allowing the TPMS to function properly.

17-21306 TPMS Parts Assortment

Includes all of the necessary component parts to service most TPMS sensors for:

- Acura
- Audi
- BMW
- Honda
- Hyundai
- Infiniti
- Kia
- Lexus
- Mercedes
- Nissan
- Saab
- Subaru
- Suzuki
- Toyota
- Volkswagen
- Other Miscellaneous Imports

17-21306

Assortment Includes:

- 165 Replacement Parts Kits
- Application Chart

Each replacement parts kit is barcoded and color coded for easy identification.

Part Number	General Application*	Qty
Replacement Parts Kits		
17-20005AK	Nissan	10
17-20007AK	Nissan, Infiniti	10
17-20009AK	Saab, Suzuki	10
17-20010AK	Volvo	10
17-20011AK	Subaru	10
17-20014AK	Nissan, Infiniti	10
17-20016AK	Mercedes	10
17-20035AK	Honda	5
17-20036AK	Acura, Honda, Kia	5
17-20202AK	Audi, Mercedes, Volkswagen	10
17-20203AK	Audi, Mercedes	5
17-20204AK	Acura, Honda, Kia	10
17-20206AK	Hyundai, Honda, Kia	10
17-20207AK	Volkswagen	10
17-20211AK	Misc. Imports	10
17-20216AK	Lexus, Toyota	10
17-20217AK	Lexus, Toyota	10
17-20221AK	Lexus SC430	10

***Applications are vehicle specific.**
For a copy of our most recent TPMS application chart, go to:

http://www.31inc.com/TPMS.pdf

TPMS Replacement Parts Kits

The OEM recommends replacing the EPDM grommet, valve cap, valve core, and sensor nut every time a TPMS sensor is removed from the wheel or the wheel is serviced. Worn component parts can cause serious problems. Replacing the critical valve component parts every time ensures an air tight seal allowing the TPMS to function properly.

See page 52 for photos

TPMS Snap-In Valves

The OEM recommends replacing the rubber snap-in TPMS valve whenever the sensor is removed from the wheel. The rubber snap-in valve is attached to the sensor module by a TORX screw with a recommended torque specification of 11.5 in-lbs or 1.3 N.m. (Use 17-167 precision torque tool).

The maximum cold inflation pressure is 90 psi.

TPMS Replacement Parts Kits and Valves

Cross Reference

31 Inc.					Schrader		Dill	
Part Number	General Application*	Color Indicator	Box Qty	Case Qty	Part Number	Kit Color	Part Number	Kit Color
17-20005AK	Nissan	1	10	240	20005	Purple	1130K	Burgundy
17-20006AK	GMC, Hummer, Isuzu	1	10	240	20006	Orange		
17-20007AK	Nissan, Infiniti	2	10	240	20007	Dk. Green		
17-20008	Rubber Snap-In TPMS Valve	2	10	240	20008		VS930	
17-20009AK	Saab, Suzuki	1	10	240	20009			
17-20010AK	Volvo	2	10	240	20010		2010K	Lt. Brown
17-20011AK	Subaru	3	10	240	20011			
17-20012AK	Prowler & Corvette	1	10	240	20012			
17-20013AK	Chrysler, Dodge, Jeep	2	10	240	20013		2030K	Lt. Grey
17-20014AK	Nissan, Infiniti	3	10	240	20014			
17-20015AK	GM with TRW Clamp-In	3	10	240	20015		2020K	Pink
17-20016AK	Mercedes	1	10	240	20016			
17-20028AK	Chrysler, Dodge, Mitsubishi	3	10	240	20003	Red	1080K	Green
17-20035AK	Honda	1	10	240	20035	Lt. Blue		
17-20036AK	Acura, Honda, Kia	2	10	240	20036	Green		
17-20096AK	Ford	1	10	240	20002	Black	1060K	Rubine Red
17-20107AK	GM	4	10	240	20004	Yellow	1070K	Blue
17-20198AK	Dodge Sprinter	4	10	240			1098K	Reddish/Purple
17-20201AK	Chrysler	5	10	240	20030	Brown	1050K	White
17-20202AK	Audi, Mercedes, VW	2	10	240	20017		1030K	Orange
17-20203AK	Audi, Mercedes	3	10	240			1040K	Pantone Brown
17-20204AK	Acura, Honda, Kia	3	10	240			2040K	Lt. Blue
17-20206AK	Hyundai, Honda, Kia	4	10	240			2000K	Yellow
17-20207AK	Volkswagen	4	10	240			1031K	Lt. Green
17-20211AK	Misc. Imports	4	10	240	20037-40		1090K	Gray
17-20216AK	Lexus, Toyota	1	10	240	20032		1100K	Purple
17-20217AK	Lexus, Toyota	2	10	240	20031	Lt. Purple	1110K	Teal
17-20221AK	Lexus SC430	3	10	240			1120K	Gold

***Applications are vehicle specific.**
For a copy of our most recent TPMS application chart, go to:

http://www.31inc.com/TPMS.pdf

See page 51 for details

TPMS Snap-In Valves

17-20008	TPMS Snap-In Valve
17-20008C	TPMS Snap-In Valve with Chromed Plastic Sleeve and Cap

17-20008

17-20008C

TPMS Replacement Parts Kits

17-20005AK

17-20006AK

17-20007AK

17-20009AK

17-20010AK

17-20011AK

17-20012AK

17-20013AK

17-20014AK

17-20015AK

17-20016AK

17-20028AK

17-20035AK

17-20036AK

17-20096AK

17-20107AK

17-20198AK

17-20201AK

17-20202AK

17-20203AK

17-20204AK

17-20206AK

17-20211AK

17-20216AK

17-20217AK

17-20221AK

Each replacement parts kit is barcoded and color coded for easy identification.

17-30404

17-30010

Banded Sensors for Ford

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30010	SE57635	Ford, Lincoln, Mazda, Mercury (Black or Blue)
17-30011	SE57636	Ford, Lincoln (Green High Pressure)

Beru Sensors

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30101	RDE 001	Audi, Mercedes, Volkswagen
17-30102	RDE 004	Audi, Mercedes, Volkswagen
17-30103	RDE 007	Audi, Porsche, Volkswagen
17-30104	RDE 002	BMW
17-30105	RDE 008	BMW
17-30106	RDE 003	BMW, Land Rover
17-30107	RDE 010	Porsche
17-30108	RDE 005	Porsche, Volkswagen

Lear Sensors

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30201	52933-4D200	Hyundai, Kia

Pacific Sensors

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30301	42753-STK-A02	Acura
17-30302	42753-TL2-A52	Acura
17-30303	42753-S2A-315	Honda
17-30304	42753-SWA-305	Honda
17-30305	42753-SWA-306	Honda
17-30306	42753-SZA-A12	Honda
17-30307	40700JK00B	Infiniti
17-30308	42607-24010	Lexus
17-30309	42607-24020	Lexus
17-30310	42607-24030	Lexus
17-30311	42607-24040	Lexus
17-30312	42607-30030	Lexus
17-30313	42607-33021	Lexus
17-30314	42607-04010	Toyota
17-30315	42607-06011	Toyota, Pontiac
17-30316	42607-33011	Toyota, Pontiac
17-30317	42607-35010	Toyota, Lexus
17-30318	42607-AD020	Toyota

Siemens (Continental) Sensors

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30401	SE55001	Audi, Volkswagen
17-30402	SE53007	Buick, Cadillac, Chevrolet, GMC, Pontiac, Saturn
17-30403	SE57243	Chrysler, Dodge
17-30404	SE57771	Chrysler, Dodge
17-30405	SE57770	Chrysler, Dodge, Jeep
17-30406	SE58003	Dodge
17-30407	SE53001	Jaguar, Land Rover
17-30408	SE53002	Jaguar, Land Rover
17-30409	SE53003	Land Rover
17-30410	SE53005	Mazda
17-30411	SE58001	Mercedes
17-30412	SE58002	Mercedes
17-30413	SE55002	Volkswagen
17-30414	SE51002	Volvo

TRW Sensors

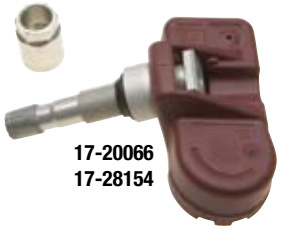
31 Inc. Part Number	Manufacturer Part Number	General Application*
17-30501	222720-104	Acura
17-30502	218898-101	Acura, Honda, Kia
17-30503	222720-103	Honda
17-30504	218898-102	Honda
17-30505	218898-103	Honda, Hyundai, Kia
17-30506	221849-101	Hyundai, Kia
17-30507	221849-102	Hyundai
17-30508	221670-101	Toyota

***Applications are vehicle specific.**
For a copy of our most recent TPMS application chart, go to:
http://www.31inc.com/TPMS.pdf

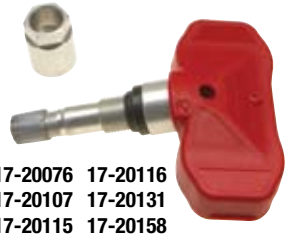
Schrader Sensors

AirAware

17-20028
17-20034
17-20064
17-20069 17-20117 17-28078
17-20082 17-20135 17-28129
17-20087 17-20156 17-28167
17-20096 17-20161 17-28204
17-28004



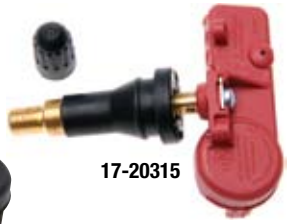
17-20066
17-28154



17-20076 17-20116
17-20107 17-20131
17-20115 17-20158

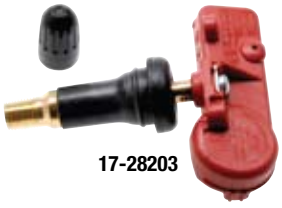
17-20081

17-20153



17-20315

17-28006



17-28203

17-28210

17-28214

17-28981

17-28982

17-28983

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-20028	20028	Chrysler, Dodge, Isuzu, Jeep, Mitsubishi
17-20034	20034	Mitsubishi
17-20064	20064	Infiniti, Nissan
17-20066	20066	Chrysler, Dodge, Jeep
17-20069	20069	Infiniti, Nissan
17-20076	20076	Cadillac, Chevrolet
17-20081	20081	Subaru
17-20082	20082	Suzuki
17-20087	20087	Suzuki
17-20096	20096	Ford, Lincoln, Mercury
17-20107	20107	Cadillac, Chevy, GMC
17-20115	20115	Cadillac, Chevy, GMC
17-20116	20116	Cadillac, Chevy, GMC, Isuzu
17-20117	20117	Cadillac, Chevrolet
17-20131	20131	Cadillac, GMC, Hummer
17-20135	20135	Ford, Lincoln
17-20153	20153	Snap-in - Buick, Cadillac, Chevy, GMC, Hummer
17-20156	20156	Volvo
17-20158	20158	Buick, Cadillac, Chevy, GMC, Hummer
17-20161	20161	Nissan
17-20315	20315	Ford Snap-In
17-28004	28004	Chrysler, Plymouth
17-28006	28006	Chevrolet
17-28078	28078	Saab
17-28129	28129	Mitsubishi
17-28154	28154	Chrysler
17-28155	28155	Jeep
17-28167	28167	Nissan
17-28203	28203	Subaru
17-28204	28204	Nissan
17-28210	28210	Infiniti
17-28214	28214	Mercedes
17-28291	28291	Chrysler
17-28670	28670	Toyota
17-28720	28720	Honda
17-28849	28849	Hyundai, Kia
17-28981	28981	Acura, Honda
17-28982	28982	Honda
17-28983	28983	Hyundai, Kia

***Applications are vehicle specific.**
For a copy of our most recent TPMS application chart, go to:
http://www.31inc.com/TPMS.pdf

Schrader can not endorse the use of non-OE validated parts. Schrader has not validated testing of the compatibility of products of any supplier other than Schrader for fit and suitability of use in conjunction with Schrader parts. Therefore, use of *BOTH* Schrader sensors and Schrader service packs or replacement snap-in stems are required for warranty protection.

Schrader Service Packs

17-20002S

17-20003S

17-20004S

17-20005S

17-20006S

17-20007S

17-20008S

17-20009S

17-20010S

17-200011S

17-20012S

17-20013S

17-20014S

17-20015S

17-20016S

17-20017S

17-20018S

17-20030S

17-20031S

17-20032S

17-20035S

17-20036S

31 Inc. Part Number	Manufacturer Part Number	General Application*
17-20002S	20002	Ford, Lincoln, Mercury
17-20003S	20003	Cadillac, Chevy, Chrysler, Dodge, Isuzu, Jeep, Mitsubishi
17-20004S	20004	Buick, Cadillac, Chevy, GMC, Hummer, Isuzu
17-20005S	20005	Infiniti, Nissan
17-20006S	20006	Chevy, GMC, Hummer
17-20007S	20007	Infiniti, Nissan
17-20008S	20008	Snap-In Valve - Buick, Cadillac, Chevrolet, GMC, Hummer
17-20009S	20009	Suzuki
17-20010S	20010	Volvo
17-20011S	20011	Subaru
17-20012S	20012	Chevrolet, Chrysler, Plymouth
17-20013S	20013	Chrysler, Dodge, Jeep
17-20014S	20014	Nissan
17-20015S	20015	Cadillac, Chevy, GMC, Hummer
17-20016S	20016	Mercedes
17-20017S	20017	Volkswagen
17-20018S	20018	Snap-In Valve - Ford
17-20019S	20019	Honda
17-20030S	20030	Buick, Chevy, Chrysler, Dodge, Jeep, Land Rover, Mazda
17-20031S	20031	Lexus, Toyota
17-20032S	20032	Toyota
17-20035S	20035	Honda
17-20036S	20036	Acura, Honda, Hyundai, Kia (short valve)

***Applications are vehicle specific.**
For a copy of our most recent TPMS application chart, go to:
http://www.31inc.com/TPMS.pdf

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Part Number	Description
TPMS Tools and Literature	
17-161	1/4" Drive Torque Wrench, 30-150 in-lbs
17-164	11mm Deep Socket, 1/4" drive
17-165	12mm Deep Socket, 1/4" drive
17-166	TPMS 4-Way Valve Tool
17-167	T-10 Torque Screwdriver Tool, 11.5 in-lbs
17-167B	Replacement Bit for 17-167
17-173	Valve Core Torque Tool, 4 in-lbs
17-601	TPMS Sensor Service Tool
19-121	MOTOR Tire Pressure Monitoring Guide

17-167

17-167B

17-167
T-10 Torque Screwdriver Tool

- Precision torque tool with a torque specification of 11.5 in-lbs (1.3 N.m.)
- For use when replacing the rubber snap-in valve for some TPMS sensors
- Black hardened steel bit fits the T-10 TORX screw and can be easily replaced

17-601
TPMS Sensor Service Tool

- Designed to keep the sensor in a safe and secure position after the locking nut has been removed and the sensor is released from the wheel
- Protects valuable valve stem sensors during tire mounting and demounting
- The handle of the tool is a 2-way tool: One side is a threaded valve core depressor tool to deflate the tire while the other side is a valve core remover tool

17-161

17-161
1/4" drive Torque Wrench

- Fast, accurate, and easy to use
- Precise tightening of TPMS nuts to the manufacturers specifications
- Micrometer type setting adjusts by rotating the hand grip from 30 to 150 in-lbs
- English and metric settings are color coded for easy reading
- Ball bearing mounted internal torque mechanism for accuracy and prolonged calibration life

17-164

17-165

17-166
TPMS 4-Way Valve Tool

- Durable, all-in-one tool for removing the sensor nuts and seating the sensor grommets
- Will remove both 11mm and 12mm nuts
- Will seat both beveled and non-beveled grommets
- Ergonomic design

17-173
Valve Core Torque Tool

- Durable, precision torque tool with a torque specification of 4 in-lbs
- Use when installing TPMS valve cores to prevent over tightening which can damage the TPMS valve by stripping the valves internal threads or removing the nickel plating of the core resulting in corrosion

19-121
MOTOR Tire Pressure Monitoring Guide

Changing a tire isn't simple anymore.
If you damage a tire pressure sensor,
a replacement sensor can cost almost as much as a new tire.

- Most complete TPMS guide available
- Covers domestic and imported cars and light trucks since 1987
- More than double the information of competitive guides
- Replacement, diagnosis and testing, relearn and reset procedures, wiring diagrams, wheel nut torque specifications, tire fitment data and service procedures

Part Number	Description
Schrader TPMS Tools	
17-153	Nut Torque Tool with Sockets
17-154	Nut Torque Wrench Kit
17-155	T-10 Torque Tool for Snap-In Sensors
17-156	Schrader Valve Core Torque Tool
17-157	Schrader Universal Nut Torque Tool Set
17-158	Grommet Removal Tool
17-159	Nissan Reset Tool

17-153
Nut Torque Tool with Sockets

- Torque wrench for TPMS sensor nuts
- Screwdriver handle for easy use
- Torque range from 4.25 N.m. to 7.5 N.m. (accuracy +/- 4%)
- Kit comes in a plastic storage case and includes both 11mm and 12mm sockets

17-154
Nut Torque Wrench Kit

- Torque tool and precision quality torque wrench for installing TPMS sensor nuts
- Torque range from 2 N.m. to 10 N.m. (accuracy +/- 2%)
- Kit comes in a plastic storage tray and includes both 11mm and 12mm sockets

17-155
T-10 Torque Tool for Snap-In Sensors

- Installs replacement snap-in valves to Schrader® OE sensors
- T-10 Torx head installs screws to recommended torque for proper sealing and secure installation

17-157
Schrader Universal Nut Torque Tool Set

- Torque wrench for TPMS sensor nuts
- Ergonomic T-handle design
- Torque range from 30 to 90 in-lbs (3.4 N.m. to 10.2 N.m.)

17-156
Schrader Valve Core Torque Tool

- Tighten valve cores to OE specifications (guards against over or under torquing)
- Meets Tire and Rim Association recommended torque values of 2 – 5 in-lbs [0.23 – 0.56 N.m.] on TR C1 valve cores
- Serves as both a core remover and installer

17-158
Grommet Removal Tool

- Designed to safely remove the rubber grommet from the aluminum stem of a TPMS sensor
- Receiving hole can be used to install a new grommet

17-159
Nissan Reset Tool

- Activates the TPMS learning mode on late model Nissan vehicles

TPMS Tools

Part Number	Description
17-142	**ATEQ VT55 OBDII TPMS Tool Kit** Includes: VT55, protective carrying pouch, USB cable, user manual and software, power adapter, magnet, OBDII connector
17-146	**T.I.P.S.© Tool Kit** Includes: T.I.P.S. tool, user guide, instructional DVD
17-147	T.I.P.S. Programming Interface Module
17-148	T.I.P.S. Holster

17-142
ATEQ VT55 OBDII TPMS Tool Kit

- Universal TPMS activation and scan tool designed to be the only tool you need to test and relearn the TPMS system
- Simple look-up – just enter the make of the vehicle and let the tool do the work
- Test and diagnose all TPMS sensors
- Powerful, rechargeable battery for all all day use
- Easily download new applications and data updates from your PC via the internet, as they become available, using a USB connection
- Designed to accommodate and service all the new sensors as they enter the market
- You can easily print the decoded sensor information from your PC
- Kit includes: VT55, protective carrying pouch, USB cable, user manual and software, power adapter, magnet, OBDII connector

17-142

17-146
T.I.P.S.© Tool KIT

- Simple, one touch sensor activation
- Universal triggering tool tests and diagnoses all TPMS sensors
- Patented "hunting" feature automatically chooses the correct triggering protocol
- Built in magnet for triggering magnetically activated sensors (no loose magnet to get lost)
- Heavy duty construction – made for long-term durability
- Long battery life; Uses 6 AA batteries; Good for over 2,000 activations
- Updateable – designed to accommodate new sensors as they become available
- Includes user guide and instructional DVD (user guide available in both English and Spanish)
- Extended 3 year warranty

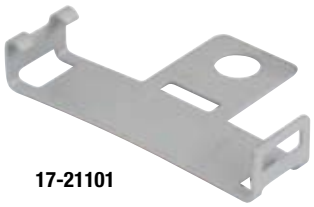
17-146

17-148

17-147

TPMS Accessories

Part Number	Description	Box Qty
17-21101	Cradle with Clip for Mounting Band	
17-21102	Replacement Clip for Cradle	
17-21103	Mounting Band for Ford Sensors	



17-21101

17-21103
- For 14" to 26" wheels
- Torque to 27 in-lbs (3 N.m.)

17-21102

TPMS Valve Accessories

17-490T	TPMS Electroless Nickel Plated Valve Core	100
17-492L-1	Long Skirted Black Plastic Cap with Seal	100
17-492T-1	Gray Plastic Cap with Seal	100
17-493P	Chromed Plastic Hex Cap with Seal	100
17-494T	Chromed Plastic Sleeve for 17-20008	

17-490T

17-492L-1

17-492T-1

17-493P

17-494T

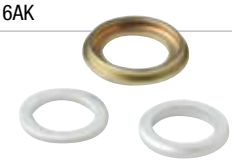
Grommets

TPMS Replacement Grommets

Part Number	Fits Listed Parts Kit	Bag Qty	Box Qty
17-20005G	17-20005AK, 17-20009AK, 17-20010AK	10	100
17-20012G	17-20012AK, 17-20203AK	10	100
17-20028G	17-20007AK, 17-20011AK, 17-20015AK, 17-20028AK	10	100
17-20096G	17-20006AK, 17-20013AK, 17-20014AK, 17-20016AK, 17-20096AK, 17-20107AK, 17-20198AK, 17-20216AK, 17-20217AK, 17-20221AK	10	100
17-20201G	17-20201AK, 17-20202AK	10	100
17-20206G	17-20035AK, 17-20036AK, 17-20204AK, 17-20206AK	10	100
17-20211G	17-20211AK	10	100

TPMS Replacement Washers

17-20201W	17-20201AK	10	100
17-20202W	17-20202AK	10	100
17-20211W1	17-20211AK (Thin Washer) 17-20217AK, 17-20221AK	10	100
17-20211W2	17-20211AK (Thick Washer)	10	100
17-20216W	17-20216AK	10	100



Washers

15-9862
TPMS Wall Mount Display

TPMS Displays

See pages 104 and 105 for more details

15-9803	TPMS Countertop Display
15-9862	TPMS Wall Mount Display

15-9803
TPMS Countertop Display

See page 116 for a comprehensive glossary of TPMS terms

TPMS SERVICE PROCEDURE

INITIAL INSPECTION

A. Before performing wheel service on any vehicle, check to see if the wheels are equipped with TPMS sensors.

B. Following the diagnostic tool manufacturer's instructions, check each sensor to ensure each is working properly and note the state of each on the service ticket.

C. If a sensor is not working properly, inform the vehicle owner that it will need to be replaced.

SENSOR IDENTIFICATION

D. Identify which type TPMS sensor is on the vehicle:

CLAMP-IN SENSORS
Have an aluminum valve stem mounted directly to the wheel through the valve hole using a special aluminum nut.

SNAP-IN SENSORS
Have a rubber snap-in valve stem mounted directly to the wheel through the valve hole. Typically identified by the long, black plastic cap and/or the extended brass shoulder.

BANDED SENSORS
Mounted in the drop center of the wheel using a metal band typically 180° from the valve stem. Ford is the only vehicle manufacturer using banded sensors as original equipment.

E. SERVICING CLAMP-IN TPMS SENSORS

1. Remove the tire from the vehicle following industry recommended procedures.
2. Deflate the tire by removing the valve core using a valve core removal tool and releasing the air completely.
3. Remove the sensor nut and push the sensor inside the tire.
4. Break the tire beads at 90° and 270° from the valve stem and remove the sensor from the wheel.
5. Dispose of the valve cap, core, nut and rubber grommet.
6. Using the appropriate new service kit, replace the valve core and grommet.
7. Reinstall the sensor through the rim hole with the flat side of the sensor facing the rim.
8. Install the new nut using a torque wrench and tighten to the proper torque specification.
9. Install the new sealing valve cap.
10. Service the tire / wheel as required following all industry and tire manufacturer guidelines.
11. Mount the tire onto the wheel taking special care not to damage the TPMS sensor.
12. Inflate the tire to the recommended placard pressure.

E. SERVICING SNAP-IN TPMS SENSORS

1. Remove the tire from the vehicle following industry recommended procedures.
2. Deflate the tire by removing the valve core using a valve core removal tool and releasing the air completely.
3. Break the tire beads at 90° and 270° from the valve stem and remove the sensor from the wheel.
4. Remove the screw from the base of the sensor using a T-10 torque screwdriver tool and carefully remove the sensor from the valve stem.
5. Dispose of the old screw.
6. Remove the rubber snap-in valve from the wheel as normal.
7. Attach the sensor to the rubber snap-in valve using a new T-10 TORX screw, then torque the screw to 11.5 in-lbs (1.3 N.m.)
8. Apply mounting lube to the rubber snap-in valve stem.
9. Align the sensor with the rim hole and attach a standard valve installation tool.
10. Pull the valve stem straight into the valve hole until it is properly seated.
11. Service the tire / wheel as required following all industry and tire manufacturer guidelines.
12. Mount the tire onto the wheel taking special care not to damage the TPMS sensor.
13. Inflate the tire to the recommended placard pressure and install the new sealing valve cap.

E. SERVICING BANDED TPMS SENSORS

1. Remove the tire from the vehicle following industry recommended procedures.
2. Deflate the tire by removing the valve core using a valve core removal tool and releasing the air completely.
3. Break the tire beads at 90° and 270° from the valve stem and remove the sensor from the wheel.
4. Remove the mounting clip to release the sensor from the mounting bracket.
5. Gently pry the sensor from the open end of the bracket and discard the mounting clip.
6. If the mounting band and/or mounting bracket show signs of wear or corrosion, replace with a new band and/or mounting bracket.
7. Install a new sensor using a new retaining clip.
8. Service the tire / wheel as required following all industry and tire manufacturer guidelines.
9. Mount the tire onto the wheel taking special care not to damage the TPMS sensor.
10. Inflate the tire to the recommended placard pressure.

F. SERVICE COMPLETION

1. Using your TPMS sensor activation tool, check all sensors making sure each is working properly.
2. Refer to your Motor TPMS Guide or vehicle owner's manual to determine if a TPMS relearn is necessary. A TPMS relearn tool may be required to reset the system.
3. If necessary, follow the instructions for resetting the vehicles TPMS system.

PASSENGER AND LIGHT TRUCK VALVES

As one of the largest suppliers of tire valves to the automotive aftermarket, we supply only valves of the highest quality. We utilize our in-house lab as well as independent laboratories to ensure our valves meet or exceed all industry quality standards.

Tube-Type Replacement Valves

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-113	13	EPDM Rubber	1.25"	–	–	.453"
17-115	15	EPDM Rubber	1.25"	–	–	.625"

Application: 65 psi maximum cold inflation pressure and maximum rim thickness of 0.156".

Tubeless Snap-In Valves

For box of 50, use part nunmber 17-413-**50**, etc.
For box of 500, use part number 17-413-**500**, etc.

17-412	412	EPDM Rubber	0.88"	–	–	.453"
17-413	413	EPDM Rubber	1.25"	–	–	.453"
17-414	414	EPDM Rubber	1.50"	–	–	.453"
17-415	415	EPDM Rubber	1.25"	–	–	.625"
17-418	418	EPDM Rubber	2.00"	–	–	.453"
17-423	423	EPDM Rubber	2.50"	–	–	.453"
17-425	425	EPDM Rubber	2.00"	–	–	.625"

Application: 65 psi maximum cold inflation pressure and maximum rim thickness of 0.156".
Note: *H, V, W, Y and Z speed rated tires require a metal bolt-in style valve.*

Tubeless Snap-In Valves with Chrome Sleeve & Cap

17-412-1	412C	EPDM Rubber	0.88"	–	–	.453"
17-413-1	413C	EPDM Rubber	1.25"	–	–	.453"
17-414-1	414C	EPDM Rubber	1.50"	–	–	.453"
17-418-1	418C	EPDM Rubber	2.00"	–	–	.453"

Application: 65 psi maximum cold inflation pressure and maximum rim thickness of 0.156".
Note: *H, V, W, Y and Z speed rated tires require a metal bolt-in style valve.*

High Pressure Snap-In Valves

17-600HP	600HP	Brass/Rubber	1.27"	–	–	.453"
17-602HP	602HP	Brass/Rubber	2.00"	–	–	.453"
17-801HP	801HP	Brass/Rubber	1.31"	–	–	.625"
17-802HP	802HP	Brass/Rubber	2.00"	–	–	.625"

Application: 600HP / 602HP = 80 psi maximum cold inflation pressure and maximum rim thickness of 0.205".
801HP / 802HP = 100 psi maximum cold inflation pressure and maximum rim thickness of 0.205".
Note: *H, V, W, Y and Z speed rated tires require a metal bolt-in style valve.*

High Pressure Snap-In Valves – Chrome

17-613		Chrome/Rubber	1.27"	–	–	.453"
17-614		Chrome/Rubber	1.50"	–	–	.453"
17-618		Chrome/Rubber	2.00"	–	–	.435"

Application: 80 psi maximum cold inflation pressure and maximum rim thickness of 0.205"
Note: *H, V, W, Y and Z speed rated tires require a metal bolt-in style valve.*

Bolt-In Valves, Flush Mount

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-416	416	Nickel Plated Brass	1.44"	–	–	.453"/.625"
17-416L		Nickel Plated Brass	2.25"	–	–	.453"/.625"
17-417	417	Brass	0.38"	2.50"	70°	.453"
17-559		Chrome Plated Brass	1.00"	–	–	.453"/.625"

17-416 and 17-416L: Recommended torque at installation: 25-45 in-lbs.

Chrome Valves, Inner Mount

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-560		Chrome Plated Brass	0.75"	–	–	.453"
17-560A		Chrome Plated Brass	1.25"	–	–	.453"
17-560L		Chrome Plated Brass	1.75"	–	–	.453"
17-561		Chrome Plated Brass	0.25"	1.00"	45°	.453"
17-562		Chrome Plated Brass	0.75"	1.13"	90°	.453"

Bolt-In Valves for Ford Trucks

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-428		Chrome Plated Brass	1.50"	–	–	.453"
17-429		Brass	2.25"	–	–	.453"

Application: For Ford "F" Series Trucks with 16" Dual Wheels

VALVE REPLACEMENT PARTS

Passenger/Light Truck

Part Number	TR Number	Description
17-494		Long Chrome Sleeve for TR 418
17-495		Short Chrome Sleeve for TR 413/414
17-495L		Long Chrome Sleeve for TR 413
17-546	RG-54	Small Grommet for 17-416, 17-428, 17-429 and 17-559
17-550	RG-39	Large Grommet for 17-416 and 17-559
17-553		Top Grommet for 17-560 Series
17-554		Bottom Grommet for 17-560 Series
17-555	RW-13	Nickel Plated Washer for 17-416 and 17-416L

Heavy Truck

Part Number	TR Number	Description
17-547	HN-21	Nut for TR 540 Series
17-548	HN-17	Nut for TR 509 Series
17-549	RG-60	O-Ring for TR 540 Series
17-551		EPDM Grommet for 17-501-OV
17-558		Grommet for TR 550 Series
17-576	HN-13	Brass Nut for TR 500 Series
17-576A	RW-8	Brass Washer for TR 500 Series
17-577	RG-15	EPDM Grommet for TR 500 Series
17-577G	RG-15	Green Silicone Grommet for TR 500 Series
17-577H	RG-15	Red Silicone Grommet for TR 500 Series
17-578	RG-46	EPDM Grommet for TR 509 Series

HEAVY TRUCK VALVES

Using inferior tire valves can expose you to huge liability issues. Protect yourself by using only quality tire valves from X-tra Seal. We offer a full range of heavy truck valves for both steel and aluminum wheels.

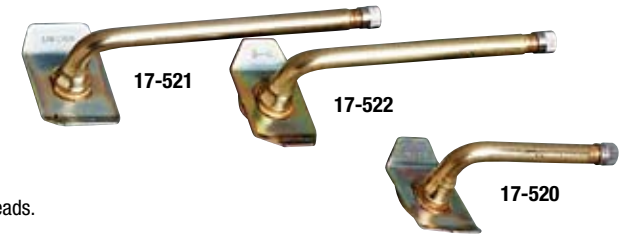
17-500A 17-500AL 17-500B

Radial Commander Valves

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-500A		Brass	1.13"	0.87"	23°	.625"
17-500AL		Brass	1.38"	1.37"	23°	.625"
17-500B		Brass	1.13"	0.87"	21°	.625"

Screw-On Repair Valves

17-520	1075A	Brass	0.88"	3.00"	88°	.625"
17-521	1078A	Brass	0.88"	5.00"	88°	.625"
17-522	1175A	Brass	0.88"	4.50"	88°	.625"



17-521 17-522 17-520

Application: Truck and bus tube-type tire. Screws onto a tube spud with .482"-26 threads.

Brass Valves

17-500T	500	Brass	2.00"	–	–	.625"
17-501T	501	Brass	1.50"	–	–	.625"
17-501-OV		Brass	1.50"	–	–	oval
17-570C	570C	Brass	1.38"	1.88"	90°	.625"
17-570T	570	Brass	3.13"	–	–	.625"
17-571T	571	Brass	3.38"	–	–	.625"
17-572T	572	Brass	3.75"	–	–	.625"
17-573T	573	Brass	4.38"	–	–	.625"
17-574T	574	Brass	5.00"	–	–	.625"
17-575T	575	Brass	1.13"	–	–	.625"

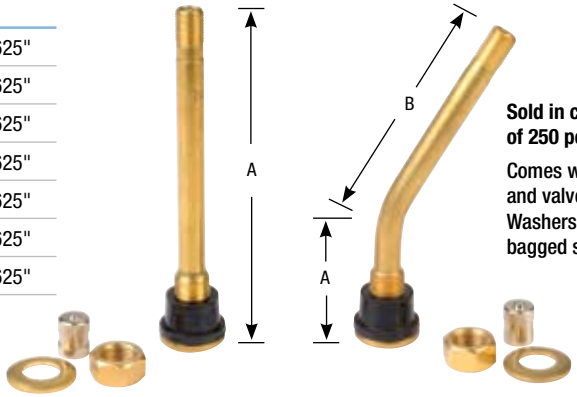
17-570C

17-500T 17-501T 17-501-OV 17-570T 17-571T 17-572T 17-573T 17-574T 17-575T

Application: For steel wheels with 0.625" valve hole; Recommended torque at installation: 35-55 in-lbs.

Brass Valves (Unassembled)

17-572T-U	572	Brass	3.75"	–	–	.625"
17-572-D12	572-D12	Brass	2.25"	1.50"	21°	.625"
17-572-F19	572-F19	Brass	1.38"	2.37"	31°	.625"
17-573T-U	573	Brass	4.38"	–	–	.625"
17-574-C26	574-C26	Brass	1.75"	3.25"	16°	.625"
17-574-E16	574-E16	Brass	3.00"	2.00"	26°	.625"
17-574-E28	574-E28	Brass	1.50"	3.50"	26°	.625"



Application: For steel wheels with 0.625" valve hole; Recommended torque at installation: 35-55 in-lbs.

Sold in case quantities of 250 pcs. only.

Comes with grommet and valve core installed. Washers, nuts and caps bagged separately.

High Temperature Brass Valve for Waste Haulers

Part Number	TR Number	Material	(A) Height	(B) Length	Angle	Valve Hole
17-573A		Brass	4.38"	–	–	.625"

17-573A

Application: For steel wheels with 0.625" valve hole; Recommended torque at installation: 35-55 in-lbs.

Brass Valves, Metric

17-41MS-00	V3-20-1	Brass	1.38"	–	–	9.7mm
17-60MS-27		Nickel plated	1.00"	1.19"	27°	9.7mm
17-70MS-27	V3-20-5	Brass	1.00"	1.56"	27°	9.7mm
17-80MS-27	V3-20-7	Brass	1.00"	2.00"	27°	9.7mm
17-90MS-27	V3-20-4	Brass	1.00"	2.38"	27°	9.7mm
17-115MS-27	V3-20-6	Brass	1.00"	3.38"	27°	9.7mm

17-41MS-00 17-70MS-27 17-80MS-27 17-90MS-27 17-115MS-27

Application: For steel wheels with 9.7mm (0.382") valve hole;

Nickel Plated Brass Valves

17-509	509	Nickel plated	0.45"	4.75"	90°	.625"
17-510	510	Nickel plated	0.45"	5.50"	90°	.625"
17-511	511	Nickel plated	0.45"	4.25"	90°	.625"

17-509 17-510 17-511

Application: For aluminum wheels with 0.625" valve hole; Recommended torque at installation: 100-125 in-lbs.

17-542 17-543 17-544 17-545 17-543C 17-543E

17-553D

17-553V 17-554V 17-555V 17-554D 17-555D

Nickel Plated Brass Valves with O-Rings - Metric

Part Number	TR Number	(A) Height	(B) Length	Angle	Valve Hole
17-542	542	1.26"	–	–	9.7mm
17-543	543	2.31"	–	–	9.7mm
17-543C	543C	0.93"	1.38"	45°	9.7mm
17-543D	543D	0.98"	1.38"	60°	9.7mm
17-543E	543E	0.98"	1.38"	75°	9.7mm
17-544	544	2.86"	–	–	9.7mm
17-544C	544C	0.98"	1.94"	45°	9.7mm
17-544D	544D	0.98"	1.94"	60°	9.7mm
17-545	545	3.50"	–	–	9.7mm
17-545D	545D	0.98"	2.60"	60°	9.7mm
17-545E	545E	0.98"	2.60"	75°	9.7mm
17-546V	546	4.27"	–	–	9.7mm
17-546-36	546-36	0.98"	3.35"	36°	9.7mm
17-546D	546D	0.98"	3.35"	60°	9.7mm
17-546E	546E	0.98"	3.35"	75°	9.7mm
17-547D	547D	0.98"	3.78"	60°	9.7mm

Nickel Plated Brass Valves with Grommet - Metric

Part Number	TR Number	(A) Height	(B) Length	Angle	Valve Hole
17-552V	552	1.26"	–	–	9.7mm
17-553V	553	2.31"	–	–	9.7mm
17-553C	553C	0.93"	1.38"	45°	9.7mm
17-553D	553D	0.98"	1.38"	60°	9.7mm
17-553E	553E	0.98"	1.38"	75°	9.7mm
17-554V	554	2.86"	–	–	9.7mm
17-554C	554C	0.98"	1.94"	45°	9.7mm
17-554D	554D	0.98"	1.94"	60°	9.7mm
17-555V	555	3.50"	–	–	9.7mm
17-555D	555D	0.98"	2.60"	60°	9.7mm
17-555E	555E	0.98"	2.60"	75°	9.7mm
17-556V	556	4.27"	–	–	9.7mm
17-556-36	556-36	0.98"	3.35"	36°	9.7mm
17-556D	556D	0.98"	3.35"	60°	9.7mm
17-556E	556E	0.98"	3.35"	75°	9.7mm
17-557D	557D	0.98"	3.78"	60°	9.7mm

Application: For aluminum wheels with 9.7mm (0.382"/0.394") valve hole and rim thickness of .218"-.330" at valve hole.
Recommended torque at installation: 80-125 in-lbs.

AGRICULTURAL AND MISCELLANEOUS VALVES

Every shipment of tire valves is thoroughly inspected to ensure our valves conform to the specifications set by the Tire and Rim Association. Whether you need motorcycle or air tank valves, or agricultural valves for tube or tubeless tires, you can rely on us to provide only the highest quality valves.

Part Number	TR Number	Description
Tube Type Agricultural Valves, Air/Liquid		
17-585	218A	3.25" Base with Core Housing
17-585/110		4.33" Base (Spud Only)
Agricultural Valves, Air/Liquid		
Recommended torque at installation: 45-75 in-lbs		
17-586	618A	Tubeless Valve, Straight
17-586A	621A	Tubeless Valve with 65˚ Bend
17-586B	622A	Tubeless Valve with 90˚ Bend
17-586C	623A	Tubeless Valve with 65˚ Bend
17-586S		Snap-In Tubeless Valve
Tractor Front Wheel Valve		
17-591		9/16" Low Profile Valve, Brass
17-591C		9/16" Low Profile Valve, Chrome
Valve Replacement Parts, Agricultural		
17-552	RG-7	Grommet for TR 618A Series
17-584	LN-10	Nylon Rim Nut
17-584B	LN-10	Brass Rim Nut
17-587	CH-3	Core Housing
17-587A	CH-1	Core Housing, "Old Style"
Valve Accessories, Agricultural		
17-588	B-6	Valve Hole Reducer Bushing
17-590		5/8" Rim Hole Plug
17-660		Air/Water Adapter Set (3 Pieces)
Tank Valves		
17-593		1/8" NPT Tank Valve
17-593L		1/8" NPT Tank Valve, Long
17-594		1/4" NPT Tank Valve
Motorcycle Valves		
17-430	430	Tubeless Motorcycle Valve

Application: For motorcycle wheels with 0.327"/0.339" valve hole; Recommended torque at installation: 25-45 in-lbs

17-585

17-585/110

17-586 17-586A

17-586B 17-586C 17-586S

17-591 17-591C

Includes grommets to fit both 0.453" and 0.625" valve holes.

17-552

17-584

17-584B

17-587

17-587A

17-588

17-590

17-660

17-430

17-593

17-593L

17-594

LARGE BORE VALVES AND ACCESSORIES

As the vehicle and tire sizes of off-road, grader, and mining equipment continue to increase, Haltec continues to be a leader in the development and manufacturing of tire valve systems. Whether you need large bore, super large bore, z-bore, or mega bore valves and accessories, Haltec offers solutions to meet your needs.

HALTEC CORPORATION

Any Haltec item not listed is available by special order. Ask for details.

Screw-On Valves for Inner Tubes

Part Number	TR Number	Description	(A) Height	(B) Length
17-626	J-1014	90° Angle	1 29/32" (48.4mm)	–
17-629	J-1076C	90° Angle	1 1/2" (38.1mm)	2 7/8" (73.0mm)
17-635	J-1175C	90° Angle	1 3/8" (34.9mm)	4 1/8" (104.8mm)
17-638	J-1078C	90° Angle	1 1/8" (28.6mm)	4 7/8" (123.8mm)

Single Bend Swivel Valves

17-645-4		90° Swivel Valve	1 5/64" (27.4mm)	4" (101.6mm)
17-645-4 1/2	J-4000-4 1/2	90° Swivel Valve	1 5/64" (27.4mm)	4 1/2" (114.3mm)
17-645-6	J-4000-6	90° Swivel Valve	1 5/64" (27.4mm)	6" (152.4mm)
17-645-9	J-4000-9	90° Swivel Valve	1 5/64" (27.4mm)	9" (228.6mm)
17-650	J-650	80° Swivel Valve	1 5/64" (27.4mm)	3 1/8" (79.4mm)
17-650C	J-650	J650 with Spud	1 5/64" (27.4mm)	3 1/8" (79.4mm)
17-651	J-651	90° Swivel Valve	1 5/64" (27.4mm)	4 11/16" (119mm)
17-653	J-653	80° Swivel Valve	1 5/64" (27.4mm)	2 1/2" (62.7mm)
17-658	J-658	80° Swivel Valve	1 5/64" (27.4mm)	5 1/2" (139.7mm)

17-645 Series

17-650 Series

Straight Valve and Tubeless Spuds

17-662	SP-2	Tubeless Spud (13/16" Rim Hole)	11/16 (15.8mm)
17-670	J-670-2	Straight Valve	1 1/2 (38.1mm)
17-670C	J-670-3	J-670-2 with Spud	1 5/8 (41.3mm)

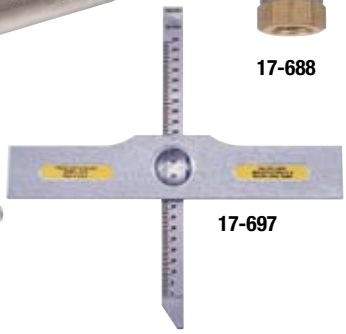
17-662 17-670 17-670C

17-685

17-688

17-687

17-694



17-697

17-589

17-840

17-850

17-856

17-859

Air Chucks and Gauges

Part Number	TR Number	Description
17-685		Large Bore Swivel Gauge, 10-150 psi
17-687		Lock-On Air Chuck (Long) with 1/4" NPT Female Threads
17-688		Clip-On Air Chuck with 1/4" NPT Female Threads

Valve Tools

17-694		Large Bore 4-Way Valve Tool
17-697		OTR Tread Depth Gauge
17-698		Large Bore Tube Deflator/Aspirator

17-698

Caps, Cores and Adapters

17-589	AD-1	Nut Style Large to Standard Bore Adapter
17-840	C-2	Large Bore Valve Core, Long
17-850	C-2	Large Bore Valve Core, Short
17-856	–	Cap Style Large to Standard Bore Adapter
17-859	VC-6	Large Bore Screwdriver Valve Cap
17-860	VC-7	Large Bore Hex-Head Valve Cap

17-860

VALVE ACCESSORIES AND TOOLS

With the introduction of TPMS and nitrogen inflation systems in recent years, tire and wheel service isn't as simple as it used to be. As we keep up with the changing needs in the aftermarket, 31 Inc. continues to make available the most popular valve tools and accessories.

Valve Caps and Cores for TPMS

Part Number	Description	Box Qty
17-490T	TPMS Electroless Nickel Plated Valve Core	100
17-492L-1	Long Skirted Black Plastic Cap with Seal	100
17-492T-1	Gray Plastic Cap with Seal	100

17-490T

17-492L-1

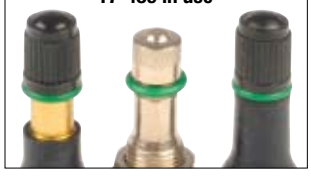
17-492T-1

Valve Caps and Cores (TPMS Compatible)

17-489		Nitrogen ID Ring	100
17-492	VC-8	Black Plastic Cap	100
17-492-1	VC-8	Black Plastic Cap with Seal	100
17-492G	VC-8	Green Plastic Cap	100
17-492G-1	VC-8	Green Plastic Cap with Seal	100
17-493BP		Chromed Plastic Cap, Long Skirted	100
17-493NP	–	Chromed Plastic Cap, Green Top with Seal	100
17-493P	–	Chromed Plastic Cap with Seal	100

17-489

17-489 in use



17-492

17-492-1

17-492G

17-492G-1

17-493BP

17-493NP

17-493P

Valve Caps and Cores

Warning: Do NOT use with TPMS Valve Stems*

17-490	C-1	Short Valve Core	100
17-490HT	C-1	Short Valve Core, High Temperature	100
17-490L	C-1	Long Valve Core, High Temperature	100
17-491D	VC-3	Long Metal Dome Cap with Seal	100
17-491E	VC-3	Short Metal Dome Cap with Seal	100
17-491S	VC-2	Metal Screwdriver Cap with Seal	100
17-491T		H.D. Metal Dome Cap with Seal	100
17-493		Chrome Hex Cap with Seal	100
17-493B		Long Skirted Chrome Hex Cap with Seal	100
17-493G		Domed Chrome Hex Cap with Seal	100
17-493N		Chrome Hex Cap, Green Top with Seal	100
17-579		Double Seal Valve Cap	–

* If a brass valve cap is installed on an aluminum valve, corrosion will occur and the cap may not be able to be removed without breaking the valve.

17-490

17-490HT

17-490L

17-491D

17-491E

17-491S

17-491T

17-493

17-493B

17-493G

17-493N

17-579

Valve Extensions, Passenger

Part Number	Description
Plastic Extensions, Passenger	
17-496	3/4" Plastic
17-497	1 1/4" Plastic
17-498	1 1/2" Plastic
17-499	2" Plastic

17-496 **17-497** **17-498** **17-499**

Part Number	Description
Metal Extensions, Passenger	
17-496B	3/4" Metal
17-497B	1 1/4" Metal
17-557	6" Chrome, 15° bend
17-563	1 3/8" Chrome, 135° bend
17-564	1 3/8" Chrome, 90° bend
17-565	1 3/8" Chrome, 45° bend

17-496B **17-497B**

17-557

17-563

17-564

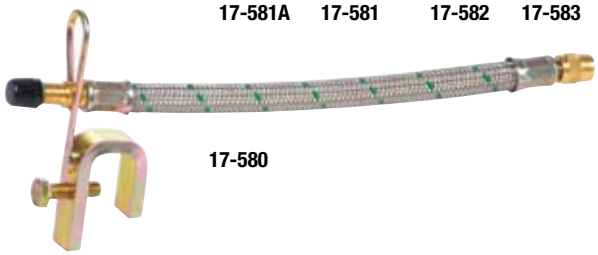
17-565

Valve Extensions, Truck

17-581BP **17-581P** **17-582P** **17-583P**

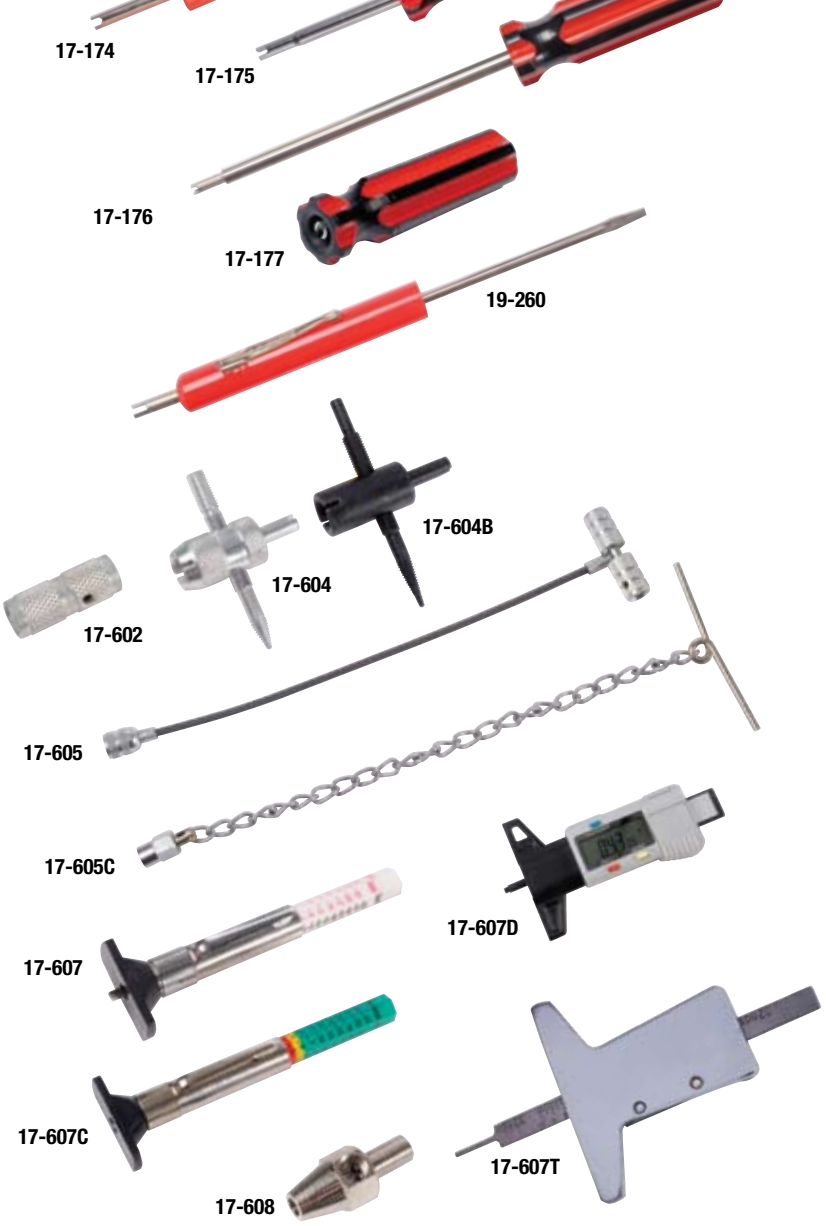
Part Number	Description
Plastic Extensions, Truck	
17-581BP	2 1/4" Plastic
17-581P	3 3/4" Plastic
17-582P	5 1/4" Plastic
17-583P	6" Plastic
Metal Extensions, Truck	
17-580	8 1/4" Metal Braided Flexible
17-581A	1 13/32" Metal
17-581	3 1/16" Metal
17-582	5 1/16" Metal
17-583	6 1/16" Metal

17-581A **17-581** **17-582** **17-583**



17-580

Part Number	Description
Valve Core Remover Tools	
17-171	Metal Core Tool
17-172	Large and Standard Bore Core Tool
17-173	TPMS Valve Core Torque Tool, 4 in-lbs
17-174	Core Tool
17-175	Screwdriver Handle Core Tool
17-176	Screwdriver Handle Core Tool, Long
17-177	Screwdriver Handle Core Tool, Recessed
19-260	Pocket Screwdriver with Core Tool
Valve Tools and Accessories	
17-602	2-Way Valve Tool
17-604	4-Way Valve Tool
17-604B	4-Way Valve Tool, Black Hardened
17-605	Cable-Type Valve Fishing Tool
17-605-24	24" Cable-Type Fishing Tool
17-605C	Chain-Type Valve Fishing Tool
17-607	Tread Depth Gauge
17-607C	Color Coded Tread Depth Gauge
17-607D	Digital Tread Depth Gauge
17-607T	Truck Tread Depth Gauge
17-608	Tube Deflator Tool
Valve Installation Tools	
17-606	Valve Installation Tool, Screw-On Type
17-606P	No-Mar Installation Tool, Screw-On Type
17-609	Valve Installation Tool, Clamp-On Type
17-609P	Valve Installation Tool, Clamp-On Type
17-610	Pull-a-Stem Valve Installation Tool



AIR CHUCKS

We offer a large selection of the most popular air chucks for standard bore tire valves. Whether you need "open" chucks for tire changers and inflator gauges or "closed" chucks for live air lines, count on 31 Inc to have what you need.

Maximum operating pressure = 150 psi

17-501 17-501N 17-503 17-503FT

17-5565 17-5567 17-506

17-504 17-504C 17-504F 17-504FC

17-505 17-505F

17-502 17-6566BC 17-6566C

17-6566FT

17-6568B 17-6568BC

17-6568C

17-6568L 17-6569

17-5565RK 17-6566RK 17-6568BRK 17-6568RK

17-907 17-907M

17-907R

Part Number	Description	Type
Air Chucks		
Ball Foot		
17-501	Ball Foot Chuck	Closed
17-501N	Nitrogen Ball Foot Chuck	Closed
17-503	Ball Foot Chuck with Clip	Closed
17-503FT	Ball Foot Chuck with Clip	Open
17-5565	Brass Ball Foot Chuck	Closed
17-5567	Brass Ball Foot Chuck with Clip	Closed
17-506	Replacement Clip for Ball Foot Chucks	
Euro Style		
17-504	Euro Style Chuck with Hose Barb	Open
17-504C	Euro Style Chuck with Hose Barb	Closed
17-504F	Euro Style Chuck with 1/4" NPT	Open
17-504FC	Euro Style Chuck with 1/4" NPT	Closed
Lock-On		
17-505	Lock-On Chuck	Closed
17-505F	Lock-On Chuck	Open
Dual-Foot		
17-502	Dual-Foot Chuck, Angled	Closed
17-6566BC	Premium Dual-Foot Chuck, Angled	Closed
17-6566C	Dual-Foot Chuck, Angled	Closed
17-6566FT	Dual-Foot Chuck, Angled (USA)	Open
17-6568B	Premium Straight-On Tilt Lock Chuck (USA)	Closed
17-6568BC	Premium Straight-On Tilt Lock Chuck	Closed
17-6568C	Straight-On Tilt Lock Chuck	Closed
17-6568L	14" Straight-On Tilt Lock Chuck	Closed
17-6569	Dual-Foot Chuck, Straight-On	Closed

Air Chuck Repair Kits

17-5565RK	Repair Kit for Ball Foot Chuck
17-5565RS	Replacement Seal for Ball Foot Chucks
17-6566RK	Repair Kit for 17-6566C
17-6568BRK	Repair Kit for 17-6568B
17-6568RK	Repair Kit for 17-6568C/17-6569
17-6568RS	Replacement Seal for Dual-Foot Chucks

Air Blow Guns

17-907	Lever-Type Air Blow Gun with Rubber Tip
17-907M	Lever-Type Air Blow Gun with Metal Tip
17-907R	Rubber Tip for 17-907 Blow Gun

AIR GAUGES

Tire pressure must be checked regularly. Maintaining proper tire inflation will increase fuel economy, increase tire life, and reduce the chance of tire failure. For these reasons, we offer a wide range of quality, reliable air gauges.

Air Gauges

Pencil

Part Number	Description		Range
17-900	**Air Gauge Counter-Top Display** Contains: 5 – 17-909C, 30 – 17-910C, 15 – 17-911C		
17-908	Air / Liquid Gauge	USA	5 - 45 psi
17-909	Low Pressure Gauge	USA	1 - 20 psi
17-909C	Low Pressure Gauge		1 - 20 psi
17-910	Standard Gauge	USA	10 - 50 psi
17-910C	Standard Gauge		10 - 50 psi
17-910S	Standard Gauge, Straight-On		10 - 50 psi
17-911	High Pressure Gauge	USA	20 - 120 psi
17-911C	High Pressure Gauge		20 - 120 psi
17-911S	High Pressure Gauge, Straight-On		20 - 120 psi
17-912C	SUV/Light Truck Gauge		10 - 75 psi

Dual-Foot Pocket

17-1031C	Dual-Foot Gauge, Angled		20 - 120 psi
17-1317B	PREMIUM Dual-Foot Gauge, Straight-On	USA	20 - 120 psi
17-1317C	Dual-Foot Gauge, Straight-On		20 - 120 psi

Dual-Foot Service

17-1045B	Premium Straight-On, 2-Sided Nylon Bar	USA	10 - 150 psi
17-1045BC	Premium Straight-On, 2-Sided Nylon Bar		10 - 150 psi
17-1045BM	Premium Straight-On, 2-Sided Metal Bar	USA	10 - 150 psi
17-1045C	Straight-On, 2-Sided Metal Bar		10 - 150 psi
17-1045M	Straight-On, 2-Sided Metal Bar	USA	10 - 150 psi
17-1045RCL	Recalibratable Gauge, Straight-On, 2-Sided Metal Bar	USA	10 - 150 psi
17-1047	Straight-On, 4-Sided Metal Bar		10 - 150 psi
17-1075	Master Test Gauge, 2-Sided Nylon Bar	USA	10 - 150 psi
17-1076	Master Test Gauge (Short), 2-Sided Nylon Bar	USA	10 - 150 psi
17-1313C	Angled, 2-Sided Metal Bar		10 - 150 psi
17-1313M	Angled, 2-Sided Metal Bar	USA	10 - 150 psi
17-1314	Angled with 18° Bend, 2-Sided Nylon Bar	USA	10 - 150 psi

17-910E

17-914

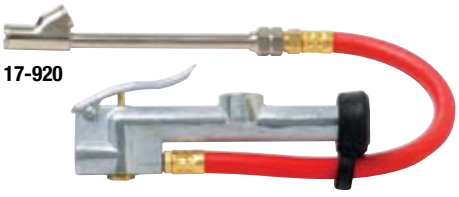
17-915

17-916

17-917

Air Gauges, Dial

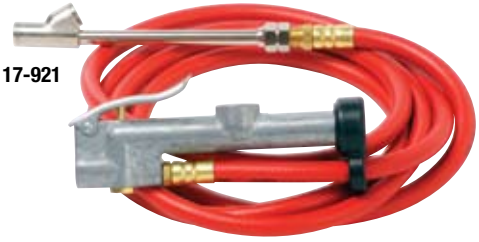
Part Number	Description	Range
17-910E	Economy Dial Gauge	0 - 55 psi
17-914	Dial Gauge, Straight-On	0 - 160 psi
17-915	Dial Gauge, Straight-On, USA	0 - 60 psi
17-916	Dial Gauge with 18" Whip Hose	0 - 170 psi
17-917	Dial Gauge with 12" Whip Hose	0 - 160 psi



17-920

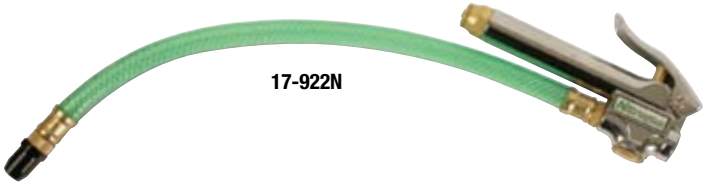
Inflator Gauges

17-920	Inflator Gauge (Sight Glass) with 12" Hose	20 - 120 psi
17-920H	Replacement Hose for 17-920	20 - 120 psi
17-921	Inflator Gauge (Sight Glass) with 9' Hose	20 - 120 psi
17-922	Inflator Gauge (Nylon Bar) with 12" Hose	20 - 120 psi
17-922N	Nitrogen Inflator Gauge (Brass Bar) with 12" Hose	0 - 90 psi
17-935	Digital Inflator Gauge, Rubber Encased	0 - 175 psi
17-936	Digital Inflator Gauge	0 - 175 psi



17-921

17-922



17-922N

17-935

17-935 and 17-936 Key Features

- High inflation and deflation rates
- Clear and easy-to-read digital display with backlight
- PSI, KPA, BAR, KGF units can be selected by the user
- Long-life battery with low battery warning light

17-936

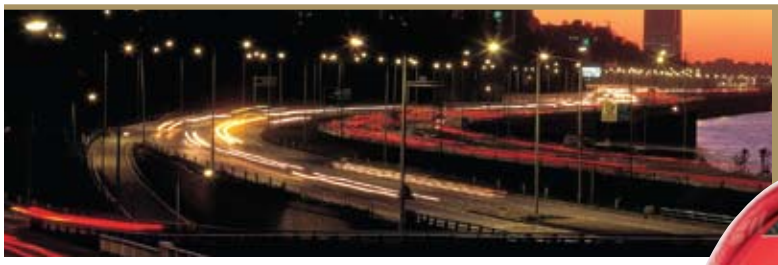
Part Number	Description
17-991	Air Gauge for Coats Rim Clamp Tire Changers, Flange Mount
17-992	Air Gauge for FMC/John Bean and Snap-On
17-993	Replacement Lens for 17-991 and 17-992

Gauges for Tire Changers

17-991

17-992

17-993



AIR HOSE AND ACCESSORIES

From air hose to replacement parts, we offer a wide range of quality products.

Rubber Air Hose

300 psi max. operating pressure

Part Number	Description	Thread Size
17-944	25' x 3/8" Rubber Air Hose	1/4" NPT
17-945	50' x 3/8" Rubber Air Hose	1/4" NPT

Rubber Air Hose – Professional Grade

300 psi max. operating pressure

17-944USA	25' x 3/8" Rubber Air Hose	1/4" NPT
17-944-3/8USA	25' x 3/8" Rubber Air Hose	3/8" NPT
17-945USA	50' x 3/8" Rubber Air Hose	1/4" NPT
17-945-3/8USA	50' x 3/8" Rubber Air Hose	3/8" NPT
17-946USA	25' x 1/2" Rubber Air Hose	3/8" NPT
17-947USA	25' x 1/2" Rubber Air Hose	1/2" NPT
17-948USA	50' x 1/2" Rubber Air Hose	3/8" NPT
17-949USA	50' x 1/2" Rubber Air Hose	1/2" NPT

17-944

17-945

17-945USA

PVC Air Hose

300 psi max. operating pressure

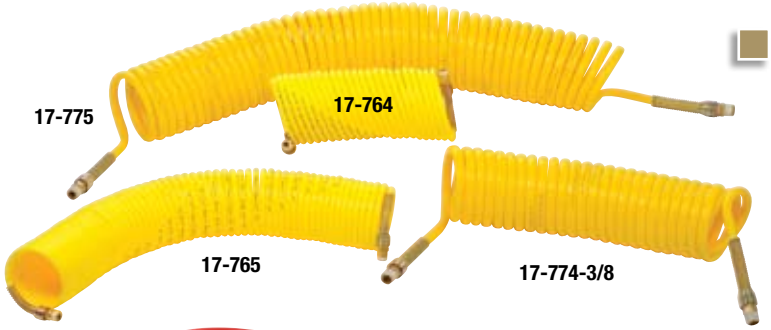
17-961	25' x 1/4" PVC Air Hose	1/4" NPT
17-962	50' x 1/4" PVC Air Hose	1/4" NPT
17-966	25' x 3/8" PVC Air Hose	1/4" NPT
17-967	50' x 3/8" PVC Air Hose	1/4" NPT
17-967N	50' x 3/8" Nitrogen PVC Hose	1/4" NPT
17-968	300' x 3/8" Bulk PVC Air Hose	
17-969	50' x 1/2" PVC Air Hose	1/2" NPT
17-970	50' x 1/2" PVC Air Hose	3/8" NPT

17-966

17-967

17-967N

17-775N



17-775

17-764

17-765

17-774-3/8

Recoil Air Hose

200 psi max. operating pressure

Part Number	Description	Thread Size
17-763	12' x 1/4" Recoil Air Hose	1/4" NPT
17-764	25' x 1/4" Recoil Air Hose	1/4" NPT
17-765	50' x 1/4" Recoil Air Hose	1/4" NPT
17-774	25' x 3/8" Recoil Air Hose	1/4" NPT
17-774-3/8	25' x 3/8" Recoil Air Hose	3/8" NPT
17-775	50' x 3/8" Recoil Air Hose	1/4" NPT
17-775-3/8	50' x 3/8" Recoil Air Hose	3/8" NPT
17-775N	50' x 3/8" Nitrogen Recoil Air Hose	1/4" NPT

17-990

17-990F

Air Hose for Tire Changers

300 psi max. operating pressure

17-990	Coats Replacement Hose, 1/4" x 56" (open chuck)
17-990F	FMC Replacement Hose, 1/4" x 56" (open chuck)

17-971 17-972 17-972R 17-977 17-977R

17-9735 17-973 17-9731 17-974 17-9743 17-9784 17-978A 17-978

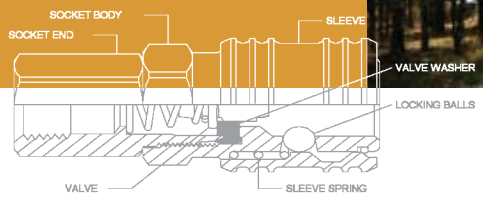
Accessories for Air Hose

Part Number	Description	Inside Diameter
17-971	Ferrule for 1/4" PVC Hose	0.520"
17-972	Ferrule for 3/8" PVC Hose	0.650"
17-972R	Ferrule for 3/8" Rubber Hose	0.750"
17-977	Ferrule for 1/2" PVC Hose	0.775"
17-977R	Ferrule for 1/2" Rubber Hose	0.900"
17-9735	1/4" Hose Barb, 1/4" Female	–
17-973	1/4" Hose Barb, 1/4" Male	–
17-9731	5/16" Hose Barb, 1/4" Male	–
17-974	3/8" Hose Barb, 1/4" Male	–
17-9743	3/8" Hose Barb, 3/8" Male	–
17-9784	1/2" Hose Barb, 1/4" Male	–
17-978A	1/2" Hose Barb, 3/8" Male	–
17-978	1/2" Hose Barb, 1/2" Male	–
17-975	1/4" Hose Splicer	–
17-9751	5/16" Hose Splicer	–
17-976	3/8" Hose Splicer	–
17-979	Air Hose Crimping Tool	–

17-975 17-9751 17-976

17-979

COUPLERS AND NIPPLES FOR AIR HOSES



Cross Reference Chart – Nipples (Plugs)

31 Inc. Part No	Amflo Part No	Camel Part No	Dill Part No	Haltec Part No	Hansen Part No	Milton Part No	NAPA Part No	Rema Part No	Schrader Part No	Tech Part No	Tru-Flate Part No
17-212	CP27	61-550	126	NI-702		791	90-648	2235	3531	VHC91	12-424
17-213	CP28	61-551	125	NI-704		792	90-650	2236	3532	VHC92	12-434
17-221	CP37	61-528	8891	NI-502	2608	777	90-618	2231	3529	VHC77	12-324
17-222	CP21	61-578	110	NI-202	10	727	90-674	2239	5138-11	VHC27	12-224
17-223	CP21-03	61-535			14	733	90-677		5263-11		12-226
17-224	CP1	61-538	D-2C	NI-102	21AP25M	783	90-624	2221	3506	VHC83	12-124
17-225	CP7	61-480	D-0E		31AP25M	1809	90-685		3519	VHC809	12-602
17-226	CP5	61-558	D-2E	NI-108	31AP37M	1807	90-658	2261	3517	VHC807	12-604
17-227	CP37-03				20AP37M		90-619				
17-228					22239						
17-229	CP35	61-162			3804	1877	90-598				
17-231	CP38	61-529	8889	NI-504	2609	778	90-620	2232	3530	VHC78	12-334
17-232	CP20	61-579	109	NI-204	11	728	90-676	2240	5139-11	VHC28	12-234
17-233	CP20-23	61-107			15	732					12-236
17-234	CP2	61-539	D-3C	NI-104	21AP25F	784	90-626	2222	3507	VHC84	12-134
17-235	CP8	61-481			31AP25F	1810	90-687		3520	VHC810	12-610
17-236	CP6	61-559	D-3E	NI-110	31AP37F	1808	90-660	2262	3518	VHC808	12-612
17-237	CP38-23				20AP37F		90-621				
17-239	CP36				3806	1878	90-599				
17-241	CP12	61-544	D-6C	NI-106		779		2226	3508		
17-242							90-636		3533		
17-246	CP22	61-023				731					
17-251	CP17	61-134			54	1857	90-578				12-752
17-252	CP18	61-137			55	1858	90-588				12-762
17-253	CP25	61-484	122	NI-206	42	1837	90-683		3542		12-526
17-255	CP26	61-485	121	NI-208	43	1838	90-681		3543		12-536
17-256	CP25-02	61-117			40	1839	90-605				12-525
17-261	CP9-03	61-474	D-0F			1819		2257	3537		12-702
17-262	CP10-23	61-475				1820	90-691				12-710
17-263	CP9	61-568	D-2F	NI-112		1817	90-666	2255	3513	VHC817	12-704
17-264	CP10	61-569	D-3F	NI-113		1818	90-668	2256	3514	VHC818	12-712

continued on next page

Cross Reference Chart – Couplers

31 Inc. Part No	Amflo Part No	Camel Part No	Dill Part No	Haltec Part No	Hansen Part No	Milton Part No	NAPA Part No	Rema Part No	Schrader Part No	Tech Part No	Tru-Flate Part No
17-312	C28	61-548	123	CO-701		790	90-644	2136	3528	VHC90	13-434
17-313	C27	61-486				794	90-645	2135	3527		13-424
17-320					1000						
17-322	C20	61-573	102	CO-201		715	90-670	2140	5142-12	VHC15	13-234
17-322P	C40	61-013		CO-301		755	90-615		5138-12		13-753
17-322S					GD1052641						
17-323	C20-23	61-103			1200	718	90-667		5263-12		13-236
17-324	C26-22	61-112			400	1833	90-632				
17-325	C26	61-482	117	CO-204	420	1835	90-680		3541		13-536
17-326	C2	61-523	D-13	CO-103		785	90-600	2122	3504	VHC85	13-134
17-327	C8	61-476	D-15C		400	1803	90-686		3521	VHC803	13-610
17-328	C6	61-553	D-15	CO-109	420	1805	90-654	2162	3516	VHC805	13-612
17-332	C21	61-574	103		1100	716	90-672	2139	5141-12		13-224
17-332P	C41	61-011		CO-303		756	90-617		5139-12		13-754
17-332S					GD1053641						
17-333	C21-03	61-101			1300	719	90-657		5140-12		13-226
17-334	C25-02	61-110			410	1834	90-625				13-525L
17-335	C25	61-483	118		430	1836	90-682				13-526
17-336	C1	61-524	D-12	CO-101		786	90-610	2121	3503		13-124
17-337	C7	61-478			410	1804	90-684				13-602
17-338	C5	61-554		CO-107	430	1806	90-656	2161	3515		13-604
17-340	C2R	61-487	D-13R	CO-105		787	90-609	2124	3505		13-136
17-342	C38	61-526	8888	CO-501		775	90-612	2132	3526	VHC75	13-334
17-343	C38-23	61-961			B23AS37F		90-603				
17-345	C36	61-161			310	1875	90-597				
17-347	C37	61-527				776	90-614	2131	3525		13-324
17-348	C37-03				B23AS37M		90-601				
17-349	C35	61-160			310313		90-596				
17-355	C10-23				500	1813					
17-356	C10	61-563			520	1815	90-662				13-712
17-361	C10-23	61-472				1813	90-690		3516		13-710
17-363	C10	61-563	D-17	CO-111		1815	90-662	2156	3512	VHC815	13-712
17-364	C9	61-564	D-16	CO-112		1816	90-664	2155	3511		13-705
17-452	C60	61-488		CO-800	B23AS25F	745	90-639			VHCEZ14	13-511
17-454	C61	61-491		CO-801	B23AS25M	746	90-946				13-509

Couplers and Nipples (Plugs)

Couplers

Nipples (Plugs)

1/4" Lincoln Series

31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI		31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI
17-312	Female	1/4"	Steel	300	TYPE A	17-213	Female	1/4"	Steel	300
17-313	Male	1/4"	Steel	300		17-212	Male	1/4"	Steel	300

1/4" Aro Series

17-342	Female	1/4"	Brass	300	TYPE B	17-231	Female	1/4"	Brass	300
17-343	Female	3/8"	Brass	150		17-237	Female	3/8"	Steel	300
17-347	Male	1/4"	Brass	300		17-221	Male	1/4"	Steel	300
17-348	Male	3/8"	Brass	150		17-227	Male	3/8"	Steel	300

3/8" Aro Series

17-345	Female	3/8"	Steel	250		17-239	Female	3/8"	Steel	300
17-349	Male	3/8"	Steel	250		17-228	Male	1/4"	Steel	300
						17-229	Male	3/8"	Steel	300

1/4" Recapper Series (Automotive Series)

17-340	Female	1/4"	Steel	300	TYPE C	17-241	Female	0.305-32"	Steel	300
						17-242	Male	1/4" *	Steel	300

** Has 0.305-32" internal threads*

1/4" Automotive Standard Series

17-326	Female	1/4"	Brass	300	TYPE C	17-234	Female	1/4"	Steel	300
17-336	Male	1/4"	Brass	300		17-224	Male	1/4"	Steel	300

Couplers

Nipples (Plugs)

3/8" Automotive Standard Series

31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI		31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI
17-327	Female	1/4"	Steel	300	TYPE G	17-235	Female	1/4"	Brass	300
17-328	Female	3/8"	Brass	300		17-236	Female	3/8"	Steel	300
17-337	Male	1/4"	Brass	300		17-225	Male	1/4"	Steel	300
17-338	Male	3/8"	Brass	300		17-226	Male	3/8"	Steel	300

1/2" Automotive Standard Series

17-361	Female	3/8"	Steel	300	TYPE F	17-262	Female	3/8"	Steel	300
17-363	Female	1/2"	Steel	300		17-264	Female	1/2"	Steel	300
17-364	Male	1/2"	Steel	300		17-261	Male	3/8"	Steel	300
						17-263	Male	1/2"	Steel	300

1/4" Industrial Interchange SAFELINE Series

17-322S	Female	1/4"	Aluminum/ Steel	232	TYPE D
17-332S	Male	1/4"	Aluminum/ Steel	232	

- Two-step disconnect procedure shuts off air supply and releases downstream air pressure before nipple can be removed from coupler preventing hose whip
- Light weight aluminum and steel construction with Buna-N (Nitrile) Seals
- Push to Connect
- To disconnect: (1) push button on side of coupler. Air supply is shut off and nipple pops out 3/16" but is not released from coupler. Downstream air is vented. (2) Push nipple into coupler to release latch. Pull nipple from socket

1/4" Industrial Interchange Recapper Series

17-320	Female	1/4"	Brass	2000	TYPE D	17-246	Female 0.305-32"		Steel	300

1/4" Industrial Interchange PUSH-TO-CONNECT Series

17-322P	Female	1/4"	Steel	300	TYPE D
17-332P	Male	1/4"	Steel	300	

Couplers

Nipples (Plugs)

1/4" Industrial Interchange Series

31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI		31 Inc. Part Number	Thread Type	Thread Size	Metal Type	Max PSI
17-322	Female	1/4"	Brass	300	TYPE D	17-232	Female	1/4"	Steel	300
17-323	Female	3/8"	Brass	300		17-233	Female	3/8"	Steel	300
17-332	Male	1/4"	Brass	300		17-222	Male	1/4"	Steel	300
17-333	Male	3/8"	Brass	300		17-223	Male	3/8"	Steel	300

3/8" Industrial Interchange Series

17-324	Female	1/4"	Brass	1000	TYPE E	17-255	Female	3/8"	Steel	300
17-325	Female	3/8"	Steel	300						
17-334	Male	1/4"	Brass	300		17-256	Male	1/4"	Steel	300
17-335	Male	3/8"	Steel	300		17-253	Male	3/8"	Steel	300

1/2" Industrial Interchange Series

17-355	Female	3/8"	Brass	500	TYPE H	17-252	Female	1/2"	Steel	300
17-356	Female	1/2"	Steel	300						
						17-251	Male	1/2"	Steel	300

1/4" Universal Series

17-452	Female	1/4"	Brass	150
17-454	Male	1/4"	Brass	150

Works with 1/4" Aro, Automotive and Industrial Interchange (Types B, C and D) Nipples (Plugs).

Xtra seal®

Repair & Supplies – Retail

Keeping You On the Road

HISTORY

31 Incorporated was founded by Robert Cornell in 1956. In 1985, 31 Inc. was acquired by Chuck Muhs and Bob Hendry, two industry veterans with extensive backgrounds in the manufacturing and distribution of tire and wheel service products. Over the years, they have brought together an exceptional team of work associates and customers to become a well-known international leader in the automotive aftermarket. 31 Inc.'s primary manufacturing facility and International Headquarters is located in rural Newcomerstown, Ohio USA with a second manufacturing and distribution branch located in Shangyu City, Zhejiang Province, China.

QUALITY

31 Incorporated, an ISO certified company, is dedicated to manufacturing only the highest quality tire repair materials. From the raw material to the finished product, production is closely monitored at every stage to ensure all of our finished products meet or exceed rigorous quality standards.

THE ONLY ONE

We are the only manufacturer of professional tire repair materials who also packages product for retail sale. We are also the only distributor of retail tire repair and supplies who is the manufacturer. We are the only one!

SALES SUPPORT

The 31 Inc. team has in-depth knowledge in every area of our industry. We are uniquely qualified to provide assistance regardless of what the challenge may be. *We are here to help you succeed.*

We are your complete source for

- **Tire Repair**
- **Tire Gauges**
- **Valve Hardware**
- **Air Accessories**
- **Commercial Tire Repair and Supplies**

Xtra seal®

Quality you depend on!
The name you trust!

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Couplers and Nipples

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Tire Valve Hardware

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TPMS Tools and Accessories

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Merchandisers

15-001
Tubeless Kit with Brown String

15-003
Tubeless Tire Repair Kit

15-004
Truck Tubeless Tire Repair Kit

15-005
Tubeless Tire Repair Kit

15-011
Tubeless Tire Repair Kit

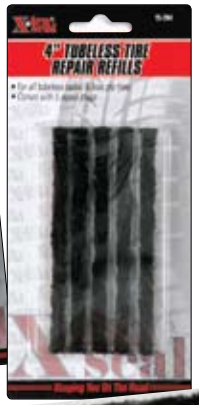
REPAIR **INSERTS**

15-016
Perma Strip Kit

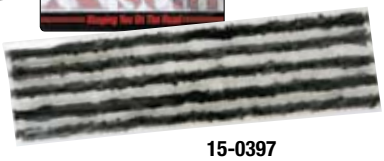
Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Repair Inserts			
15-001	Tubeless Kit with Brown String	5	50
15-003	Tubeless Tire Repair Kit	5	50
15-004	Truck Tubeless Tire Repair Kit	5	50
15-005	Tubeless Tire Repair Kit	5	50
15-011	Tubeless Tire Repair Kit	5	50
15-014	Tubeless Tire Kit, Closed-Eye	10	50
15-016	Perma Strip Kit	10	100
15-390	4" Refill, 30 Pack	10	100
15-394	4" Refill, 5 Pack	10	100
15-0397	7" Refill, 5 Pack	6	72
15-045	Tire Tool Box	6	72
15-050	Tire Maintenance Kit	5	30

15-014
Tubeless Tire Kit, Closed-Eye

15-390
4" Refill, 30 Pack



15-394
4" Refill, 5 Pack



15-0397
7" Refill, 5 Pack

15-045
Tire Tool Box

15-050
Tire Maintenance Kit

15-012
Cold Patch Kit

15-018
Bike Patch Kit

15-019
Radial Tire Patch Kit

15-020
Chemical Tire and Tube Patch Kit

15-0383
Plug-Patch Kit

REPAIR **UNITS**

15-0472
Bias Ply Agricultural,
1 – 4 1/2" and 1 – 5 1/2" Repair

15-0474
Bias Ply Agricultural,
1 – 6 1/2" and 1 – 7 1/2" Repair

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Repair Units			
15-012	Cold Patch Kit	10	100
15-018	Bike Patch Kit	10	100
15-019	Radial Tire Patch Kit	10	100
15-020	Chemical Tire and Tube Patch Kit	10	100
15-0383	Plug-Patch Kit	6	60
15-0472	Bias Ply Agricultural, 1 – 4 1/2" and 1 – 5 1/2" Repair	6	72
15-0474	Bias Ply Agricultural, 1 – 6 1/2" and 1 – 7 1/2" Repair	6	72
Chemicals			
14-008-1	8 oz. Vulcanizing Cement with Hang Tab		24
15-026	1 oz. Rubber Cement, Flammable	10	100

REPAIR **CHEMICALS**

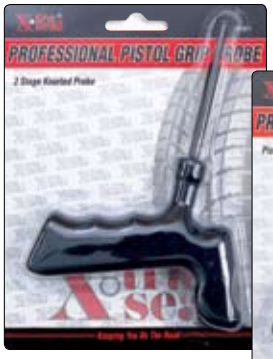
14-008-1
8 oz. Vulcanizing Cement with Hang Tab

15-026
1 oz. Rubber Cement,

Rasp

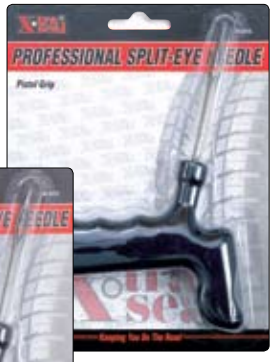
Closed-Eye

Split-Eye



15-0211
Pro Pistol-Grip Probe (Rasp)

15-0213
Pro Pistol-Grip Closed-Eye Needle



15-0216
Pro Pistol-Grip Split-Eye Needle

15-0308
Buffer Stitcher

15-0314
Wood Handle Stitcher

15-0317
Pro Chrome Insertion Tool
Split-Eye Needle

REPAIR **TOOLS**

15-552
Yellow Tire Crayon

15-553
White Paint Stick

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Repair Tools			
15-0211	Pro Pistol-Grip Probe (Rasp)	6	72
15-0213	Pro Pistol-Grip Closed-Eye Needle	6	72
15-0216	Pro Pistol-Grip Split-Eye Needle	6	72
15-0308	Buffer Stitcher	6	72
15-0314	Wood Handle Stitcher	6	72
15-0317	Pro Chrome Insertion Tool, Split-Eye Needle	6	72
15-552	Yellow Tire Crayon	10	100
15-553	White Paint Stick	10	100
Tire Sealant			
15-0700	Heavy Duty Tire Sealant, 1 Gallon		4
15-0708	Heavy Duty Tire Sealant, 8 oz.		12
15-0716	Heavy Duty Tire Sealant, 16 oz.		12
15-0732	Heavy Duty Tire Sealant, 32 oz.		12

15-0716
Heavy Duty Tire Sealant,
16 oz.

15-0732
Heavy Duty Tire Sealant ,
32 oz.

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Standard Gauges			
15-905	Standard Tire Gauge, 2-Sided Bar	12	144
15-908	Tractor Tire Gauge	12	144
15-909	Low Pressure Tire Gauge	12	144
15-910	Deluxe Tire Gauge	12	144
15-9105	Standard Tire Gauge, Straight-On	12	144
15-911	High Pressure Gauge	12	144
15-940	Stainless Steel Gauge	12	144
15-1031	Pocket Dual-Foot Gauge	12	144
15-1045	Truck Service Gauge, Straight-On	6	72
15-1313	Truck Gauge	6	72

STANDARD GAUGES

15-905
Standard Tire Gauge, 2-Sided Bar

15-908
Tractor Tire Gauge

15-909
Low Pressure Tire Gauge

15-910
Deluxe Tire Gauge

15-9105
Standard Tire Gauge, Straight-On

15-911
High Pressure Gauge

15-1031
Pocket Dual-Foot Gauge

15-1045
Truck Service Gauge, Straight-On

15-1313
Truck Gauge

Maintaining proper tire inflation will

- Increase fuel economy
- Increase tire life
- Reduce the chance of tire failure

DIGITAL GAUGES

15-1010
Key Chain
Digital Tire Gauge

15-1020
Mini Digital Tire Gauge

15-1050
Digital Tire Gauge

DIAL GAUGES

15-906
Deluxe Dial Gauge for Large and Standard Bore with Bleeder

15-9061
Deluxe Dial Gauge for Standard Bore with Bleeder

15-955
Mini Dial Gauge

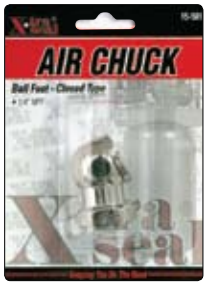
15-1075
SUV Dial Gauge

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Digital Gauges			
15-1010	Key Chain Digital Tire Gauge	12	144
15-1020	Mini Digital Tire Gauge	12	144
15-1050	Digital Tire Gauge	6	72
Dial Gauges			
15-906	Deluxe Dial Gauge for Large and Standard Bore with Bleeder	12	144
15-9061	Deluxe Dial Gauge for Standard Bore with Bleeder	12	144
15-955	Mini Dial Gauge	6	144
15-1075	SUV Dial Gauge	3	36
Inflator Gauges			
15-5920	Inflator with 12" Hose Dual-Foot Chuck	6	72
15-5922	Inflator with 12" Hose, Straight-On Chuck	6	72
Gauge Displays			
15-905CD	Standard Tire Gauge, 2-Sided Bar Counter Display	1	12

INFLATOR GAUGE

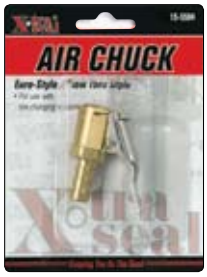
15-5922
Inflator with 12" Hose,
Straight-On Chuck

15-905CD
Standard Tire Gauge
2-Sided Bar Counter Display

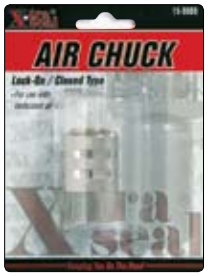


15-501
Ball Foot Chuck

15-503
Ball Foot Chuck with Clip



15-5504
Euro Style Chuck with
1/4" Hose Barb, Open



15-5505
Lock-On Chuck

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Air Chucks			
15-501	Ball Foot Chuck	12	144
15-503	Ball Foot Chuck with Clip	6	72
15-5504	Euro Style Chuck with 1/4" Hose Barb, Open	6	72
15-5505	Lock-On Chuck	6	72
15-7566	Dual-Foot Chuck	6	72
15-7568	Dual-Foot Chuck, Straight-On, Tilt-Lock	6	72
15-7569	Dual-Foot Chuck, Straight-On	6	72
Air Blow Guns and Accessories			
15-507	Inflator Needles	12	144
15-5601	Blow Gun Kit	6	72
15-5602	Blow Gun with Safety Tip	6	72
15-5603	Siphon Blow Gun	6	72

AIR **CHUCKS**

15-7568
Dual-Foot Chuck,
Straight-On Tilt Lock

15-7566
Dual-Foot Chuck

15-7569
Dual-Foot Chuck,
Straight-On

AIR **BLOW GUNS** AND ACCESSORIES

15-507
Inflator Needles

15-5601
Blow Gun Kit

15-5602
Blow Gun with Safety Tip

15-5603
Siphon Blow Gun

15-5606
Pocket Blow Gun,
Industrial Style

15-5611
Pocket Blow Gun,
Truflate Style

15-5612
Pocket Blow Gun,
Aro Style

15-5607
Blow Gun with Rubber Tip

AIR **BLOW GUNS** AND ACCESSORIES

All items packaged on individual retail cards

15-5608
Blow Gun with Plastic Pistol Grip

15-5609
Blow Gun with Regular Tip

15-5610
Blow Gun Accessory Kit

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Air Blow Guns and Accessories *- continued*			
15-5606	Pocket Blow Gun, Industrial Style	6	72
15-5607	Blow Gun with Rubber Tip	6	72
15-5608	Blow Gun with Plastic Pistol Grip	6	72
15-5609	Blow Gun with Regular Tip	6	72
15-5610	Blow Gun Accessory Kit	6	72
15-5611	Pocket Blow Gun, Truflate Style	6	72
15-5612	Pocket Blow Gun, Aro Style	6	72
Water Nozzles/Fittings			
15-4661	Garden Hose Coupler and Plug	6	72
15-4666	Water Nozzle, 3/4" Garden Bibb	4	48
15-4667	Radiator Filler, 1/4" NPT Female	4	48

WATER **NOZZLES**/FITTINGS

15-4661
Garden Hose Coupler and Plug

15-4666
Water Nozzle,
3/4" Garden Bibb

15-4667
Radiator Filler,
1/4" NPT Female

AIR **HOSE**

17-944
Rubber Air Hose,
25' x 3/8"

17-945
Rubber Air Hose,
50' x 3/8"

17-966
PVC Air Hose
25' x 3/8"

17-967
PVC Air Hose,
50' x 3/8"

15-5310
Swivel Lead-In Hose,
18" x 1/4"

15-5318
Swivel Lead-In Hose,
24" x 3/8"

15-5330
Swivel Lead-In Hose,
30" x 3/8"

15-5336
Swivel Lead-In Hose,
36" x 1/4"

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Air Hose			
15-5310	Swivel Lead-In Hose, 18" x 1/4"	6	72
15-5318	Swivel Lead-In Hose, 24" x 3/8"	6	72
15-5330	Swivel Lead-In Hose, 30" x 3/8"	6	72
15-5336	Swivel Lead-In Hose, 36" x 1/4"	6	72
15-5925	Re-Coil Air Hose, 25' x 1/4"	6	72
15-5925-3	Re-Coil Air Hose, 25' x 3/8"	1	3
15-5950	Re-Coil Air Hose, 50' x 1/4"	1	3
15-5950-3	Re-Coil Air Hose, 50' x 3/8"	1	3
17-944	Rubber Air Hose, 25' x 3/8"	1	6
17-945	Rubber Air Hose, 50' x 3/8"	1	3
17-966	PVC Air Hose, 25' x 3/8"	1	6
17-967	PVC Air Hose, 50' x 3/8"	1	3

15-5925
Re-Coil Air Hose, 25' x 1/4"

15-5925-3
Re-Coil Air Hose, 25' x 3/8"

15-5950
Re-Coil Air Hose, 50' x 1/4"

15-5950-3
Re-Coil Air Hose, 50' x 3/8"

15-593
Tank Valve, 1/8" NPT

15-594
Tank Valve, 1/4" NPT

Air Tank and Accessories			
15-593	Tank Valve, 1/8" NPT	12	144
15-594	Tank Valve, 1/4" NPT	12	144
15-5960	Drain Cock, 1/8" NPT	6	72
15-5962	Drain Cock, 1/4" NPT	6	72
15-5964	Pop-Off Valve, 125 psi	6	72
15-5966	Pop-Off Valve, 150 psi	6	72
15-5989	Portable Air Tank, 9 Gallon	1	

AIR **TANK** AND ACCESSORIES

15-5960
Drain Cock, 1/8" NPT

15-5962
Drain Cock, 1/4" NPT

15-5964
Pop-Off Valve, 125 psi

15-5966
Pop-Off Valve, 150 psi

15-5989
Portable Air Tank

15-5730
Hose Clamps
2 - #4's and 2 - #6's

15-5733
1/4" Hose Barb,
1/4" NPT Female

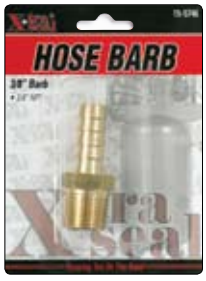
15-5734
1/4" Hose Barb,
1/4" NPT Male

15-5735
5/16" Hose Barb,
1/4" NPT Male

15-5743
3/8" Hose Barb,
1/4" NPT Female

15-5744
3/8" Hose Barb,
1/4" NPT Male

15-5745
1/2" Hose Barb,
1/4" NPT Male



15-5746
3/8" Hose Barb,
3/8" NPT Male

15-5754
1/4" Hose Mender

15-5755
5/16" Hose Mender

15-5766
3/8" Hose Mender

AIR HOSE **ACCESSORIES**

15-5771
Reusable Fitting, 1/4" NPT Male
(1/4" ID x 19/32" OD)

15-5772
Reusable Fitting, 1/4" NPT Male
(3/8" ID x 11/16" OD)

15-5773
Reusable Fitting, 1/4" NPT Male
(3/8" ID x 3/4" OD)

15-5780
Reusable Hose Splicer, 1/4" NPT
(1/4" ID, 5/8" OD Hose)

15-5790
1/4" Swivel Connector

15-5820
Coupling,
1/4" NPT Male
x 1/4" NPT Male

15-5830
Coupling,
1/4" NPT Female
x 1/4" NPT Female

15-5840
Bushing,
1/4" NPT Female x
3/8" NPT Male

15-5850
3-in-1 Air Manifold

15-5860
In-Line Regulator,
1/4" NPT

15-5870
In-Line Lubricator, 1/4" NPT

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Air Hose Accessories			
15-5730	Hose Clamps 2 - #4's and 2 - #6's	12	144
15-5733	1/4" Hose Barb, 1/4" NPT Female	12	144
15-5734	1/4" Hose Barb, 1/4" NPT Male	12	144
15-5735	5/16" Hose Barb, 1/4" NPT Male	12	144
15-5743	3/8" Hose Barb, 1/4" NPT Female	12	144
15-5744	3/8" Hose Barb, 1/4" NPT Male	12	144
15-5745	1/2" Hose Barb, 1/4" NPT Male	12	144
15-5746	3/8" Hose Barb, 3/8" NPT Male	12	144
15-5754	1/4" Hose Mender	12	144
15-5755	5/16" Hose Mender	12	144
15-5766	3/8" Hose Mender	12	144
15-5767	1/2" Hose Mender	12	144
15-5771	Reusable Fitting, 1/4" NPT Male (1/4" ID x 19/32" OD)	6	72
15-5772	Reusable Fitting, 1/4" NPT Male (3/8" ID x 11/16" OD)	6	72
15-5773	Reusable Fitting, 1/4" NPT Male (3/8" ID x 3/4" OD)	6	72
15-5780	Reusable Hose Splicer, 1/4" NPT (1/4" ID, 5/8" OD Hose)	6	72
15-5790	1/4" Swivel Connector	6	72
15-5820	Coupling, 1/4" NPT Male x 1/4" NPT Male	6	72
15-5830	Coupling, 1/4" NPT Female x 1/4" NPT Female	6	72
15-5840	Bushing, 1/4" NPT Female x 3/8" NPT Male	6	72
15-5850	3-in-1 Air Manifold	4	48
15-5860	In-Line Regulator, 1/4" NPT	4	48
15-5870	In-Line Lubricator, 1/4" NPT	4	48
15-7020	Swivel Fitting, 1/4" Male x 1/4" Male	6	72
15-7021	Swivel Fitting, 1/4" Male x 1/4" Female	6	72

All items on this page are packaged in a clamshell display pack for shelf or peg hook use.

Part Number	Item Description	Inner Pack Qty
Regulators, Filters and Lubricators		
15-803	Filter and Regulator, 1/4" NPT Mini with Gauge	1
15-804	Filter and Regulator, 1/4" NPT with Gauge	1
15-807	Filter and Regulator, 3/8" NPT with Gauge	1
15-808	Filter and Regulator, 1/2" NPT with Gauge	1
15-809	Filter and Regulator, 3/4" NPT with Gauge	1
15-810	Regulator, Mini 1/4" NPT with Gauge	1
15-811	Regulator, Compact 1/4" NPT with Gauge	1
15-813	Regulator, Compact 3/8" NPT with Gauge	1
15-815	Regulator, Standard 1/2" NPT with Gauge	1
15-816	Regulator, Standard 3/4" NPT with Gauge	1
15-817	Regulator, Standard 1" NPT with Gauge	1
15-820	Filter, Mini 1/4" NPT Manual	1
15-821	Filter, Compact 1/4" NPT Manual	1
15-821A	Filter, Compact 1/4" NPT Automatic	1
15-823	Filter, Compact 3/8" NPT Manual	1
15-823A	Filter, Compact 3/8" NPT Automatic	1
15-825	Filter, Standard 1/2" NPT Manual	1
15-825A	Filter, Standard 1/2" NPT Automatic	1
15-827	Filter, Standard 3/4" NPT Manual	1
15-827A	Filter, Standard 3/4" NPT Automatic	1
15-829	Filter, Standard 1" NPT Manual	1
15-830	Lubricator, Mini 1/4" NPT	1
15-831	Lubricator, Compact 1/4" NPT	1
15-833	Lubricator, Compact 3/8" NPT	1
15-835	Lubricator, Standard 1/2" NPT	1
15-837	Lubricator, Standard 3/4" NPT	1
15-839	Lubricator, Hi-Flo 1" NPT	1
15-841	Airline Gauge, 0-200 psi 1/8" NPT Back Mount	1
15-843	Airline Gauge, 0-150 psi 1/4" NPT Back Mount	1
15-844	Airline Gauge, 0-150 psi 1/4" NPT Bottom Mount	1
15-845	Airline Gauge, 0-300 psi 1/4" NPT Back Mount	1
15-846	Airline Gauge, 0-300 psi 1/4" NPT Bottom Mount	1
15-847	Airline Gauge, 0-60 psi 1/8" NPT Back Mount	1
15-848	Airline Gauge, 0-60 psi 1/4" NPT Bottom Mount	1

15-803
Mini Filter and Regulator,
1/4" NPT Mini wth Gauge

15-804
Filter and Regulator,
1/4" NPT with Gauge

15-807
Filter and Regulator,
3/8" NPT with Gauge

15-808
Filter and Regulator,
1/2" NPT with Gauge

15-809
Filter and Regulator,
3/4" NPT with Gauge

15-810
Regulator Mini,
1/4" NPT with Gauge

15-811
Regulator Compact,
1/4" NPT with Gauge

15-813
Regulator Compact,
3/8" NPT with Gauge

15-815
Regulator Standard,
1/2" NPT with Gauge

15-816
Regulator Standard,
3/4" NPT with Gauge

15-817
Regulator Standard,
1" NPT with Gauge

REGULATORS **FILTERS** AND LUBRICATORS

15-820
Filter, Mini,
1/4" NPT Manual

15-821
Filter, Compact
1/4" NPT Manual

15-821A
Filter, Compact
1/4" NPT Automatic

15-823
Filter, Compact
3/8" NPT Manual

15-823A
Filter, Compact
3/8" NPT Automatic

15-825
Filter, Standard
1/2" NPT Manual

15-825A
Filter, Standard
1/2" NPT Automatic

15-827
Filter, Standard
3/4" NPT Manual

15-827A
Filter, Standard
3/4" NPT Automatic

15-829
Filter, Standard
1" NPT Manual

15-830
Lubricator Mini,
1/4" NPT

15-831
Lubricator Compact,
1/4" NPT

15-833
Lubricator Compact,
3/8" NPT

15-835
Lubricator Standard,
1/2" NPT

15-837
Lubricator Standard,
3/4" NPT

15-839
Lubricator Hi-Flo,
1" NPT

15-841
Airline Gauge, 0-200 psi
1/8" NPT Back Mount

15-843
Airline Gauge, 0-150 psi
1/4" NPT Back Mount

15-844
Airline Gauge, 0-150 psi
1/4" NPT Bottom Mount

15-845
Airline Gauge, 0-300 psi
1/4" NPT Back Mount

15-846
Airline Gauge, 0-300 psi
1/4" NPT Bottom Mount

15-847
Airline Gauge, 0-60 psi
1/8" NPT Back Mount

15-848
Airline Gauge, 0-60 psi
1/4" NPT Bottom Mount

Match Style and Type

Cards are color coded to help identify matching components.

STYLE	TYPE
LINCOLN	A (GREEN)
ARO	B (RED)
TRUFLATE	C (BLUE)
INDUSTRIAL	D (YELLOW)

Couplers and Plugs

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Industrial Style - 1/4" Body			
15-7110	Swivel Plug, 1/4" Body 1/4" NPT Male	6	72
15-7111	Swivel Plug, 1/4" Body 1/4" NPT Female	6	72
15-7120	Type D Coupler Set, 1/4" NPT Female Coupler, 1/4" NPT Female Plug, 1/4" NPT Male Plug	6	72
15-7122	Type D Plug, 1/4" Body 1/4" NPT Male	12	144
15-7130	Type D Coupler, 1/4" Body 1/4" NPT Male	6	72
15-7132	Type D Plug, 1/4" Body 1/4" NPT Female	12	144
15-7150	Type D Coupler, 1/4" Body 1/4" NPT Female	6	72
15-7124	Type D Coupler, 1/4" Body 3/8" NPT Female	6	72
Industrial Style - 3/8" Body			
15-7125	Type E Coupler, 3/8" Body 3/8" NPT Female	6	72
15-7126	Type E Coupler, 3/8" Body 3/8" NPT Male	6	72
15-7153	Type E Plug, 3/8" Body 3/8" NPT Male	6	72
15-7154	Type E Plug, 3/8" Body 1/4" NPT Female	6	72
15-7155	Type E Plug, 3/8" Body 3/8" NPT Female	6	72
Industrial Style - 1/2" Body			
15-7157	Type H Coupler, 1/2" Body 3/8" NPT Female	6	72
15-7156	Type H Coupler, 1/2" Body 1/2" NPT Female	6	72
15-7151	Type H Plug, 1/2" Body 1/2" NPT Male	6	72
15-7152	Type H Plug, 1/2" Body 1/2" NPT Female	6	72

15-7120
Type D Set,
Coupler, Female -
Plug Female - Plug Male

15-7122
Type D Plug,
1/4" Body,
1/4" NPT Male

15-7130
Type D, Coupler,
1/4" Body 1/4" NPT Male

INDUSTRIAL STYLE

15-7132
Type D Plug,
1/4" Body
1/4" NPT Female

15-7150
Type D Coupler,
1/4" Body
1/4" NPT Female

15-7125
Type E Coupler,
3/8" Body
3/8" NPT Female

15-7153
Type E Plug,
3/8" Body
3/8" NPT Male

15-7155
Type E Plug,
3/8" Body
3/8" NPT Female

15-7157
Type H Coupler,
1/2" Body
3/8" NPT Female

15-7156
Type H Coupler,
1/2" Body
1/2" NPT Female

15-7151
Type H Plug,
1/2" Body
1/2" NPT Male

15-7152
Type H Plug,
1/2" Body
1/2" NPT Female

15-7320
Type C Coupler,
1/4" Body
1/4" NPT Female

15-7324
Type C Plug,
1/4" Body
1/4" NPT Male

15-7334
Type C Plug,
1/4" Body
1/4" NPT Female

15-7321
Type C Coupler,
1/4" Body
1/4" NPT Male

AUTOMOTIVE STYLE

15-7327
Type G Coupler,
3/8" Body
1/4" NPT Female

15-7325
Type G Plug,
3/8" Body
1/4" NPT Male

15-7335
Type G Plug,
3/8" Body
1/4" NPT Female

15-7328
Type G Coupler,
3/8" Body
3/8" NPT Female

15-7338
Type G Coupler,
3/8" Body
3/8" NPT Male

15-7326
Type G Plug,
3/8" Body
3/8" NPT Male

15-7336
Type G Plug,
3/8" Body
3/8" NPT Female

15-7340
Type F Plug,
1/2" Body
3/8" NPT Male

15-7329
Type F Coupler,
1/2" Body
1/2" NPT Female

15-7339
Type F Coupler,
1/2" Body
1/2" NPT Male

15-7341
Type F Plug,
1/2" Body
1/2" NPT Male

15-7342
Type F Plug,
1/2" Body
1/2" NPT Female

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Automotive Tru-Flate Style - 1/4" Body			
15-7306	Swivel Plug, 1/4" Body 1/4" NPT Male	6	72
15-7307	Swivel Plug, 1/4" Body 1/4" NPT Female	6	72
15-7310	Type C Coupler Set, 1/4" NPT Female Coupler, 1/4" NPT Female Plug, 1/4" NPT Male Plug	6	72
15-7320	Type C Coupler, 1/4" Body 1/4" NPT Female	6	72
15-7324	Type C Plug, 1/4" Body 1/4" NPT Male	12	144
15-7334	Type C Plug, 1/4" Body 1/4" NPT Female	12	144
15-7321	Type C Coupler, 1/4" Body 1/4" NPT Male	6	72
Automotive Tru-Flate Style - 3/8" Body			
15-7327	Type G Coupler, 3/8" Body 1/4" NPT Female	6	72
15-7325	Type G Plug, 3/8" Body 1/4" NPT Male	6	72
15-7335	Type G Plug, 3/8" Body 1/4" NPT Female	6	72
15-7328	Type G Coupler, 3/8" Body 3/8" NPT Female	6	72
15-7338	Type G Coupler, 3/8" Body 3/8" NPT Male	6	72
15-7326	Type G Plug, 3/8" Body 3/8" NPT Male	6	72
15-7336	Type G Plug, 3/8" Body 3/8" NPT Female	6	72
Automotive Tru-Flate Style - 1/2" Body			
15-7340	Type F Plug, 1/2" Body 3/8" NPT Male	6	72
15-7329	Type F Coupler, 1/2" Body 1/2" NPT Female	6	72
15-7339	Type F Coupler, 1/2" Body 1/2" NPT Male	6	72
15-7341	Type F Plug, 1/2" Body 1/2" NPT Male	6	72
15-7342	Type F Plug, 1/2" Body 1/2" NPT Female	6	72

Match Style and Type

Cards are color coded to help identify matching components.

STYLE	TYPE
LINCOLN	A (GREEN)
ARO	B (RED)
TRUFLATE	C (BLUE)
INDUSTRIAL	D (YELLOW)

15-7430
Lincoln Coupler,
1/4" NPT Female

15-7461
Lincoln Plug,
1/4" NPT Male

LINCOLN STYLE

15-7465
Lincoln Plug,
1/4" NPT Female

15-7472
Lincoln Coupler,
1/4" NPT Male

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Lincoln Style 1/4" Body			
15-7430	Type A Coupler, 1/4" NPT Female	6	72
15-7440	Type A Coupler Set, 1/4" NPT Female Coupler, 1/4" NPT Female Plug, 1/4" NPT Male Plug	6	72
15-7461	Type A Plug, 1/4" NPT Male	12	144
15-7465	Type A Plug, 1/4" NPT Female	12	144
15-7472	Type A Coupler, 1/4" NPT Male	6	72
Aro Style 1/4" Body			
15-7510	Type B Coupler, 1/4" NPT Female	6	72
15-7511	Type B Coupler, 1/4" NPT Male	6	72
15-7521	Type B Nipple, 1/4" NPT Male	12	144
15-7530	Type B Coupler Set, 1/4" NPT Female Coupler, 1/4" NPT Female Plug, 1/4" NPT Male Plug	6	72
15-7531	Type B Nipple, 1/4" NPT Female	12	144
Universal Style - 1/4" Body			
15-7052	Universal Coupler, Push-to-Connect 1/4" NPT Female	6	72
15-7054	Universal Coupler, Push-to-Connect 1/4" NPT Male	6	72

ARO STYLE

15-7510
Aro Coupler,
1/4" NPT Female

15-7511
Aro Coupler,
1/4" NPT Male

15-7521
Aro Nipple,
1/4" NPT Male

15-7531
Aro Nipple,
1/4" NPT Female

UNIVERSAL STYLE

15-7052
Universal Coupler
Push-to-Connect
1/4" NPT Female

15-7054
Universal Coupler
Push-to-Connect
1/4" NPT Male

31 Retail Part Number	31 Pro.	Tru-Flate	Camel	Milton	Acme	NAPA	Item Description	
Universal Style 1/4" Body								
15-7052	17-452	13-511					**Coupler**	Universal Coupler, Push-Cont.1/4" NPT Female
15-7054	17-454	13-509	61-241				**Coupler**	Universal Coupler, Push-Cont.1/4" NPT Male
Industrial Style								
15-7110		12-229					**Plug**	Swivel Plug, 1/4" Body 1/4" NPT Male
15-7111		12-239					**Plug**	Swivel Plug, 1/4" Body 1/4" NPT Female
15-7120		13-201					**Set**	Type D Set, Coupler Female - Plug Female - Plug Male
15-7122	17-222	12-225	61-578	727	A910N-SBL	90674	**Plug**	Industrial Type D, 1/4" Body 1/4" NPT Male
15-7124	17-323	13-236		718		90667	**Coupler**	Industrial Type D, 1/4" Body 3/8" NPT Female
15-7125	17-325	13-537	61-482	1835	A940B-BL	90680	**Coupler**	Industrial Type E, 3/8" Body 3/8" NPT Female
15-7126		13-527	61-483	1836		90682	**Coupler**	Industrial Type E, 3/8" Body 3/8" NPT Male
15-7130	17-332	13-225	61-574	716	A938B-BL	90672	**Coupler**	Industrial Type D, 1/4" Body 1/4" NPT Male
15-7132	17-232	12-235	61-579	726	A911N-SBL	90676	**Plug**	Industrial Type D, 1/4" Body 1/4" NPT Female
15-7150	17-322	13-235	61-573	715	A937B-BL	90670	**Coupler**	Industrial Type D, 1/4" Body 1/4" NPT Female
15-7151	17-251	12-752	61-134	1857		90578	**Plug**	Industrial Type H, 1/2" Body 1/2" NPT Male
15-7152	17-252	12-762	61-137	1858		90588	**Plug**	Industrial Type H, 1/2" Body 1/2" NPT Female
15-7153	17-253	12-527	61-484	1837	A940N-SBL	90683	**Plug**	Industrial Type E, 3/8" Body 3/8" NPT Male
15-7154		12-535		1840		90606	**Plug**	Industrial Type E Plug, 3/8" Body 1/4" NPT Female
15-7155	17-255	12-537	61-485	1836		90681	**Plug**	Industrial Type E, 3/8" Body 3/8" NPT Female
15-7156	17-356	13-713	61-563	1815		90631	**Coupler**	Industrial Type H, 1/2" Body 1/2" NPT Female
15-7157	17-355		61-472			90690	**Coupler**	Industrial Type H, 1/2" Body 3/8" NPT Female
Automotive Tru-Flate Style								
15-7306		12-127					**Plug**	Swivel Plug, 1/4" Body 1/4" NPT Male
15-7307		12-137					**Plug**	Swivel Plug, 1/4" Body 1/4" NPT Female
15-7310		13-101					**Set**	Type C, Set, Coupler FML- Plug Female - Plug Male
15-7320	17-326	13-135	61-523	785	A925B-BL	90600	**Coupler**	Type C, 1/4" Body 1/4" NPT Female
15-7321	17-336	13-125	61-524	786	A928N-SBL	90610	**Coupler**	Type C, 1/4" Body 1/4" NPT Male
15-7324	17-224	12-125	61-538	783	A929N-SBL	90624	**Plug**	Type C, 1/4" Body 1/4" NPT Male
15-7325	17-225	12-603	61-480	1809	A944N	90685	**Plug**	Type G, 3/8" Body 1/4" NPT Male
15-7326	17-226	12-605	61-558	1807	A940N	90658	**Plug**	Type G, 3/8" Body 3/8" NPT Male
15-7327	17-327	13-611	61-476	1803	A944B	90686	**Coupler**	Type G, 3/8" Body 1/4" NPT Female
15-7328	17-328	13-613	61-553	1805	A940B	90654	**Coupler**	Type G, 3/8" Body 3/8" NPT Female
15-7329	17-363	13-713	61-563	1815	A942B	90631	**Coupler**	Type G, 1/2" Body 1/2" NPT Female
15-7334	17-234	12-135	61-539	784	A929N	90626	**Plug**	Type C, 1/4" Body 1/4" NPT Female
15-7335	17-235	12-610	61-481	1810	A945N	90687	**Plug**	Type G, 3/8" Body 1/4" NPT Female
15-7336	17-236	12-612	61-559	1808	A941N	90660	**Plug**	Type G, 3/8" Body 3/8" NPT Female
15-7338	17-338	13-604	61-554	1806		90656	**Coupler**	Type G, 3/8" Body 3/8" NPT Male
15-7339	17-364	13-705	61-564	1816		90627	**Coupler**	Type F, 1/2" Body 1/2" NPT Male
15-7340	17-261	12-702	61-474	1819		90689	**Plug**	Type G, 1/2" Body 3/8" NPT Male
15-7341	17-263	12-705	61-568	1817	A942N	90666	**Plug**	Type F, 1/2" Body 1/2" NPT Male
15-7342	17-264	12-713	61-569	1818	A943N	90668	**Plug**	Type F, 1/2" Body 1/2" NPT Female
Lincoln Style 1/4" Body								
15-7430	17-312	13-435	61-548	790	A935B-BL	90644	**Coupler**	Type A, Long, 1/4" Body 1/4" NPT Female
15-7440		13-401					**Set**	Type A, Long, 1/4" Set
15-7461	17-212	12-425	61-550	791	A933N-SBL	90648	**Plug**	Type A, Long, 1/4" Body 1/4" NPT Male
15-7465	17-213	12-435	61-551	792	A934N-SBL	90650	**Plug**	Type A, Long, 1/4" Body 1/4" NPT Female
15-7472	17-313	13-425	61-486	794	A935B-BL	90645	**Coupler**	Type A, Long, 1/4" Body 1/4" NPT Male
Aro Style 1/4" Body								
15-7510	17-342	13-335	61-526	775	A918B-BL	90612	**Coupler**	Type B, 1/4" Body 1/4" NPT Female
15-7511	17-347	13-325	61-527	776	A919B-BL	90614	**Coupler**	Type B, 1/4" Body 1/4" NPT Male
15-7521	17-221	12-325	61-528	777	A914N-SBL	90618	**Plug**	Type B, 1/4" Body 1/4" NPT Male
15-7530		13-301					**Set**	Type B, Set
15-7531	17-231	12-335	61-529	778	A916N-SBL	90620	**Plug**	Type B, 1/4" Body 1/4" NPT Female

15-412
1" Tire Valves

15-413
1 1/4" Tire Valves

15-4134
1 1/4" Tire Valves with Chrome Sleeves

15-4142
1 1/2" Tire Valves

15-4152
1 1/2" Tire Valves
for 0.625" Valve Hole

TIRE **VALVES**

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Tire Valves			
15-412	1" Tire Valves	12	144
15-413	1 1/4" Tire Valves	12	144
15-4134	1 1/4" Tire Valves with Chrome Sleeves	12	144
15-4142	1 1/2" Tire Valves	12	144
15-4152	1 1/2" Tire Valves for 0.625" Valve Hole	12	144
15-418	2" Tire Valves	12	144
15-4184	2" Tire Valves with Chrome Sleeves	12	144
15-4232	2 1/2" Tire Valves	12	144
15-4252	2" Tire Valves for 0.625" Valve Hole	12	144
15-4600	1 1/4" High Pressure Tire Valves (TR600HP)	6	72
15-416	1 1/2" Metal Bolt-In Valve (TR416)	12	144
15-4559-2	1" Chrome Valve	12	144
Valve Extensions			
15-4580	Metal Braided Dual Wheel Valve Extensions	6	72
15-496	3/4" Plastic Valve Extensions	12	144
15-4961	3/4" Metal Valve Extensions	12	144
15-497	1 1/4" Plastic Valve Extensions	12	144
15-4971	1 1/4" Metal Valve Extensions	12	144
15-498	1 1/2" Plastic Valve Extensions	12	144

15-418
2" Tire Valves

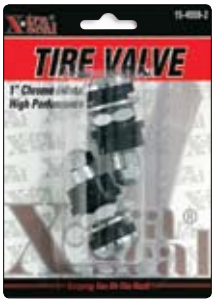
15-4184
2" Tire Valves
with Chrome Sleeves

15-4232
2 1/2" Tire Valves

15-4252
2" Tire Valves
for 0.625" Valve Hole

15-4600
1 1/4" High Pressure
Tire Valves (TR600HP)

15-416
1 1/2" Metal Bolt-In Valve
(TR416 Valve)



15-4559-2
1" Chrome Valve

VALVE **EXTENSIONS**

15-4580
Metal Braided
Dual Wheel
Valve Extensions
(2 per card)

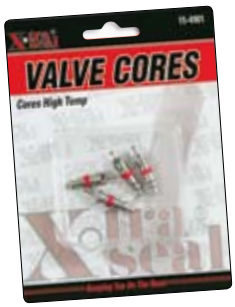
15-496
3/4" Plastic
Valve Extensions

15-4961
3/4" Metal
Valve Extensions

15-497
1 1/4" Plastic
Valve Extensions

15-4971
1 1/4" Metal
Valve Extensions

15-498
1 1/2" Plastic
Valve Extensions



15-4901
High Temp Valve Cores

15-492
Black Plastic Valve Caps

15-4924
Green Plastic Valve Caps

15-4911
Metal Slot Head Valve Caps

VALVE **CAPS AND CORES**

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Valve Caps and Cores			
15-4901	High Temp Valve Cores	12	144
15-492	Black Plastic Valve Caps	12	144
15-4924	Green Plastic Valve Caps	12	144
15-4911	Metal Slot Head Valve Caps	12	144
15-4915	Metal Dome Valve Caps	12	144
15-493	Chrome Hex Valve Caps	12	144
15-4934	Chrome Hex Valve Caps with Chrome Sleeves	12	144
15-4441	Sport Valve Caps, Silver	12	144
15-4454	Sport Valve Caps, Blue	12	144
15-4455	Sport Valve Caps, Red	12	144
15-4458	Sport Valve Caps, Black	12	144
15-4032	Indicator Valve Caps, 32 psi	12	144
15-4036	Indicator Valve Caps, 36 psi	12	144

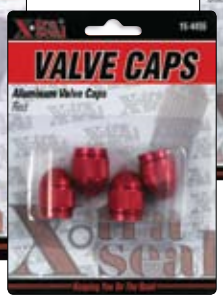
15-4915
Metal Dome Valve Caps

15-493
Chrome Hex Valve Caps

15-4934
Chrome Hex Valve Caps with Chrome Sleeves

15-4441
Sport Valve Caps, Silver

15-4454
Sport Valve Caps, Blue



15-4455
Sport Valve Caps, Red

15-4458
Sport Valve Caps, Black

15-4032
Indicator Valve Caps, 32 psi

15-4036
Indicator Valve Caps, 36 psi

VALVE **TOOLS** AND ACCESSORIES

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
Valve Tools and Accessories			
15-3174	Standard Bore Core Remover	12	144
15-3602	2-Way Valve Tool	12	144
15-3605	Valve Fishing Tool	12	144
15-3606	Valve Installation Tool	6	36
15-3607	Tread Depth Gauge	12	144
15-4660	Air Water Adaptor, 3pc. Set	6	72
15-4895	Valve Adaptor	6	72
15-604	4-Way Valve Tool	12	144
15-6045	4-Way Valve Tool with Valve Cores	12	144

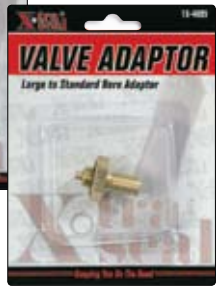
15-3174
Standard Bore Core Remover

15-3602
2-Way Valve Tool

15-3605
Valve Fishing Tool

15-3607
Tread Depth Gauge

15-4660
Air Water Adaptor,
3 pc. Set



15-4895
Valve Adaptor

15-604
4-Way Valve Tool

15-6045
4-Way Valve Tool
with Valve Cores

15-3606
Valve Installation
Tool

TPMS **TOOLS**

17-161
Torque Wrench,
30-150 in-lbs

17-161
1/4" drive Torque Wrench

- Fast, accurate, and easy to use
- Precise tightening of TPMS nuts to the manufacturers specifications
- Micrometer type setting adjusts by rotating the hand grip from 30 to 150 in-lbs
- English and metric settings are color coded for easy reading
- Ball bearing mounted internal torque mechanism for accuracy and prolonged calibration life

15-2164
11mm Deep Socket,
1/4" Drive

15-2165
12mm Deep Socket,
1/4" Drive

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
TPMS Tools			
17-161	Torque Wrench, 30-150 in-lbs	1	
15-2164	11mm Deep Socket, 1/4" Drive	6	72
15-2165	12mm Deep Socket, 1/4" Drive	6	72
15-2167	TPMS Torque Tool	6	72
15-2173	TPMS Valve Core Torque Tool, 4 in-lbs	6	72
15-2601	TPMS Fishing Tool	6	72
15-2602	TPMS 2-Way Valve Tool	12	144

15-2601
TPMS Fishing Tool

15-2602
TPMS 2-Way Valve Tool

15-2167
TPMS Torque Tool,
11.5 in-lbs

15-2167
T-10 Torque Screwdriver Tool

- Precision torque tool with a torque specification of 11.5 in-lbs (1.3 N.m.)
- For use when replacing the rubber snap-in valve for some TPMS sensors
- Black hardened steel bit fits the T-10 TORX screw and can be easily replaced

15-2173
TPMS Valve Core Torque Tool,
4 in-lbs

15-2173
Valve Core Torque Tool

- Durable, precision torque tool with a torque specification of 4 in-lbs
- Use when installing TPMS valve cores to prevent over tightening which can damage the TPMS valve by stripping the valves internal threads or removing the nickel plating of the core resulting in corrosion

TPMS

Part Number	General Application*	Color Indicator	Inner Pack Qty	Master Pack Qty
TPMS Replacement Parts Kits				
15-20005	Nissan	1	6	72
15-20006	GMC, Hummer, Isuzu	1	6	72
15-20007	Nissan, Infiniti	2	6	72
15-20008	Rubber Snap-In TPMS Valve	2	6	72
15-20009	Saab, Suzuki	1	6	72
15-20010	Volvo	2	6	72
15-20011	Subaru	3	6	72
15-20012	Prowler & Corvette	1	6	72
15-20013	Chrysler, Dodge, Jeep	2	6	72
15-20014	Nissan, Infiniti	3	6	72
15-20015	GM with TRW Clamp-In	3	6	72
15-20016	Mercedes	1	6	72
15-20028	Chrysler, Dodge, Mitsubishi	3	6	72
15-20035	Honda	1	6	72
15-20036	Acura, Honda, Kia	2	6	72
15-20096	Ford	1	6	72
15-20107	GM	4	6	72
15-20198	Dodge Sprinter	4	6	72
15-20201	Chrysler	5	6	72
15-20202	Audi, Mercedes, VW	2	6	72
15-20203	Audi, Mercedes	3	6	72
15-20204	Acura, Honda, Kia	3	6	72
15-20206	Hyundai, Honda, Kia	4	6	72
15-20207	Volkswagen	4	6	72
15-20211	Misc. Imports	4	6	72
15-20216	Lexus, Toyota	1	6	72
15-20217	Lexus, Toyota	2	6	72
15-20221	Lexus SC430	3	6	72

Applications are vehicle specific.
For a copy of our most recent
TPMS application chart, go to:

http://www.31inc.com/TPMS.pdf

15-20005

15-20006

15-20007

15-20008

15-20028

15-20035

15-20036

15-20096

15-20107

15-20201

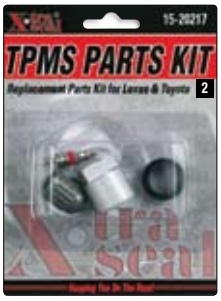
15-20202

15-20203

15-20206

15-20211

15-20216



15-20217

15-20221

TPMS **REPLACEMENT PARTS KITS**

All of the following TPMS parts kits are packaged on cards for easy merchandising

15-20009

15-20010

15-20011

15-20012

15-20013

15-20014

15-20015

15-20016

15-20198

15-20204

Part Number	Item Description	Inner Pack Qty	Master Pack Qty
TPMS Valve Caps and Cores			
15-4904	TPMS Electroless Nickel Plated Valve Cores	12	144
15-4922	Black Plastic Sealing Cap	12	144
15-4923	Green Plastic Sealing Cap	12	144
15-4925	Gray Plastic Sealing Cap	12	144
15-4927	Long Skirted Black Plastic Sealing Cap	12	144
15-4932	Chromed Plastic Sealing Cap	12	144
15-4933	Chromed Plastic Sleeves and Caps for 15-20008 Valve	12	144
15-4935	Chromed Plastic Sealing Cap with Green Top	12	144

15-4904
TPMS Electroless Nickel Plated Valve Cores

TPMS **VALVE CAPS AND CORES**

15-4922
Black Plastic Sealing Cap

15-4923
Green Plastic Sealing Cap

15-4925
Gray Plastic Sealing Cap

15-4927
Long Skirted Black Plastic Sealing Cap

15-4932
Chromed Plastic Sealing Cap

15-4933
Chromed Plastic Sleeves and Caps for 15-20008 Valve

15-4935
Chromed Plastic Sealing Cap with Green Top

See page 116 for a comprehensive glossary of TPMS terms

Replacement Parts Kits*

15-20005	Nissan	6
15-20006	GMC, Hummer, Isuzu	6
15-20007	Nissan, Infiniti	6
15-20008	Rubber Snap-In TPMS valve	12
15-20009	Saab, Suzuki	6
15-20010	Volvo	6
15-20011	Subaru	6
15-20012	Prowler & Corvette	6
15-20013	Chrysler, Dodge, Jeep	6
15-20014	Nissan, Infiniti	6
15-20015	GM with TRW Clamp-In	6
15-20016	Mercedes	6
15-20028	Chrysler, Dodge, Mitsubishi	6
15-20035	Honda	6
15-20036	Acura, Honda, Kia	6
15-20096	Ford	6
15-20107	GM	6
15-20198	Dodge Sprinter	6
15-20201	Chrysler	6
15-20202	Audi, Mercedes, VW	6
15-20203	Audi, Mercedes	6
15-20204	Acura, Honda, Kia	6
15-20206	Hyundai, Honda, Kia	6
15-20207	Volkswagen	6
15-20211	Misc. Imports	6
15-20216	Lexus, Toyota	6
15-20217	Lexus, Toyota	6
15-20221	Lexus SC430	6

Valve Caps and Cores

15-4904	Nickel Plated TPMS Valve Cores	12
15-4922	Black Plastic TPMS Valve Cap	6
15-4923	Green Plastic TPMS Valve Cap	6
15-4925	Gray Plastic TPMS Valve Cap	12
15-4935	Chromed Plastic Cap with Green Top	6

15-9803 TPMS Countertop Display

- Let your customers know you have aftermarket TPMS replacement parts available and get them asking you about TPMS
- Smart, clean, efficient way to stock the TPMS category
- High impulse activity generates profitable sales
- Durable display rack is made of high quality steel with ball bearing swivel base
- Comes with 40 - 4" peg hooks with flip-scan label holders and 4-sided header card
- Rack dimensions: **11.50" x 11.50" x 27.25"** (with peg hooks & header card: 18" x 18" x 32.38")

Panel 1

Panel 2

Panel 3

Panel 4

* Applications are vehicle specific. For a copy of our most recent TPMS application chart, go to: http://www.31inc.com/TPMS.pdf

Replacement Parts Kits*

15-20005	Nissan	6
15-20006	GMC, Hummer, Isuzu	6
15-20007	Nissan, Infiniti	6
15-20008	Rubber Snap-In TPMS valve	6
15-20009	Saab, Suzuki	6
15-20010	Volvo	6
15-20011	Subaru	6
15-20012	Prowler & Corvette	6
15-20013	Chrysler, Dodge, Jeep	6
15-20014	Nissan, Infiniti	6
15-20015	GM with TRW Clamp-In	6
15-20016	Mercedes	6
15-20028	Chrysler, Dodge, Mitsubishi	6
15-20035	Honda	6
15-20036	Acura, Honda, Kia	6
15-20096	Ford	6
15-20107	GM	6
15-20198	Dodge Sprinter	6
15-20201	Chrysler	6
15-20202	Audi, Mercedes, VW	6
15-20203	Audi, Mercedes	6
15-20204	Acura, Honda, Kia	6
15-20206	Hyundai, Honda, Kia	6
15-20207	Volkswagen	6
15-20211	Misc. Imports	6
15-20216	Lexus, Toyota	6
15-20217	Lexus, Toyota	6
15-20221	Lexus SC430	6

Valve Caps and Cores

15-4904	Nickel Plated TPMS Valve Cores	6

15-9862 TPMS Wall Mount Display

- Let your customers know you have aftermarket TPMS replacement parts available and get them asking you about TPMS
- Smart, clean, efficient way to stock the TPMS category
- High impulse activity generates profitable sales
- Easily mounts on a wall to free up countertop space
- Durable display rack is made of high quality steel
- Comes with 4" peg hooks with flip-scan label holders
- Rack dimensions: **21" x 25.38" x 1"** (with peg hooks: 21" x 25.38" x 5.88")

* Applications are vehicle specific. For a copy of our most recent TPMS application chart, go to: http://www.31inc.com/TPMS.pdf

MERCHANDISERS

Professional Tire Repair

11-321	1 3/4" Small Round Universal	2
11-322	2 1/4" Medium Round Universal	2
11-323	3 1/8" Large Round Universal	1
12-361	4" Fat, Brown String Inserts	3
12-362	8" Fat, Brown String Inserts	1
14-008	8 oz. Vulcanizing Cement	3
14-100	32 oz. Pre-Buff Rubber Cleaner	2
14-101	32 oz. Bead Sealer	2

DIY Tire Repair

15-005	Tubeless Tire Repair Kit	4
15-011	Tubeless Tire Repair Kit	4
15-012	Cold Patch Kit	4
15-014	Tubeless Tire Kit, Closed-Eye	4
15-019	Radial Tire Patch Kit	4
15-020	Chemical Tire and Tube Patch Kit	4
15-026	1oz. Vulcanizing Cement	4
15-0308	Buffer Stitcher	2
15-390	4" Refill, 30 Pack	2
15-394	4" Refill, 5 Pack	6

Tire Gauges

15-906	Deluxe Dial Gauge with Bleeder	2
15-908	Tractor Tire Gauge	4
15-909	Low Pressure Tire Gauge	4
15-910	Deluxe Tire Gauge	6
15-911	High Pressure Gauge	4
15-955	Mini Dial Gauge	4
15-1010	Key Chain Digital Tire Gauge	4
15-1020	Mini Digital Tire Gauge	4
15-1031	Pocket Dual-Foot Gauge	4
15-1045	Truck Service Gauge, Straight-On	4
15-1050	Digital Tire Gauge	2
15-1313	Truck Service Gauge	4

Valve Hardware

15-3174	Standard Core Remover	4
15-3602	2-Way Valve Tool	4
15-3605	Valve Fishing Tool	4
15-3606	Valve Installation Tool	4
15-3607	Tread Depth Gauge	4
15-413	1 1/4" Tire Valves	4
15-4134	1 1/4" Tire Valve with Chrome Sleeve	4
15-4142	1 1/2" Tire Valves	4
15-4152	1 1/2" Tire Valves	4
15-418	2" Tire Valves	4
15-4441	Sport Valve Caps, Silver	4
15-4455	Sport Valve Caps, Red	4
15-4458	Sport Valve Caps, Black	4
15-4559-2	1" Chrome Valve	4
15-4901	High Temp Valve Cores	4
15-4911	Slot Head Valve Caps	4
15-4915	High Heat Dome Caps	4
15-492	Plastic Valve Caps	6
15-493	Chrome Valve Caps	4
15-4934	Chrome Valve Caps with Sleeves	4
15-496	3/4" Plastic Valve Extensions	4
15-4961	3/4" Metal Valve Extensions	4
15-497	1 1/4" Plastic Valve Extensions	4
15-4971	1 1/4" Metal Valve Extensions	4
15-604	4-Way Valve Tool	4
15-6045	4-Way Valve Tool with Valve Cores	4

15-9821

Air Accessories

15-501	Ball Foot Air Chuck	4
15-503	Ball Foot Air Chuck with Clip	2
15-5601	Blow Gun Kit	2
15-5602	Blow Gun with Safety Tip	2
15-5607	Blow Gun with Rubber Tip	2
15-5922	Inflator Gauge	1
15-7120	Type D Set (F Coupler, M Plug, F Plug)	8
15-7122	Industrial Type D Plug, Male	4
15-7132	Industrial Type D Plug, Female	4
15-7150	Industrial Type D Coupler, Female	4
15-7566	Dual-Foot Chuck	4

Panel 1

Panel 2

Panel 3

15-9821 Floor Spinner Display

- Prominently display tire repair kits and air accessories
- High impulse activity generates profitable sales
- Contains the fastest moving items in both retail and commercial tire repair and accessories
- Durable display rack is made of high quality steel with ball bearing swivel base
- Comes with peg hooks with flip-scan label holders and header card
- Rack dimensions: **63" x 14.5" x 14.5"**
  (with peg hooks & header card 71.5" x 21" x 21")

We are your complete source for

- **Tire Repair**
- **Tire Gauges**
- **Valve Hardware**
- **Air Accessories**
- **Commercial Tire Repair and Supplies**

4' set of our most popular items

4' set with a focus towards
the professional installer

We can also design a set that is adapted to meet your specific needs

Xtra seal®

Quality you depend on!
The name you trust!

Let our experienced, retail/commercial experts design the set that's right for you!

PRODUCT INFORMATION

Items manufactured by 31 Inc.:

X-tra Seal tire repair materials are guaranteed for fitness and merchantability. No returns will be accepted for items that are defective due to misuse or improper storage of repair materials.

Items distributed but not manufactured by 31 Inc.:

31 Incorporated, manufacturers of X-tra Seal tire repair, makes no guarantee or other warranty, express or implied, of goods sold or distributed hereunder, or of their merchantability, fitness, or suitability for a particular purpose or condition. 31 Inc. warrants that it has made no alteration or other change to the product manufactured by others and distributed by 31 Inc., and that the original manufacturer's warranties, if any, are the only warranties applicable to the goods. 31 Inc. shall not be responsible or liable for any claim, loss, damage, liability, or expense of any kind or nature, including, but not limited to, special, incidental, or consequential damages or loss of profits, whether actual or anticipated, caused directly or indirectly by the goods sold.

Recommendations for Storage of Repair Materials

X-tra Seal tire repair materials should be stored in an area with a maximum ambient temperature of 80°F (27°C) and a maximum humidity of 75%. If these conditions are exceeded, use an air conditioned storage room at 65°F (18°C) for best results. All materials should be stored in a clean, dry area and surface contamination should be prevented. Always rotate stock so that the oldest materials are consumed first.

Technical Data for X-tra Seal Tire Repair Materials

REPAIR UNITS (PATCHES)

Properties of Face Gum (Gray, Blue, and Black):

Physical Properties:		Rheometer @ 310°F (154°C):	
Tensile:	2800 psi	Max. Torque:	12.64 - 13.20
300% Modulus:	1100 psi	Min. Torque:	06.58 - 07.10
Elongation:	550%	Scorch Time:	02.90 - 03.37
Hardness, Shore A:	32	T-90:	10.00 - 10.62

Shelf Life:

24 months if stored at 65°F (18°C) and avoiding direct sunlight
18 months if stored at "normal room temperatures" (Max. 80°F (27°C))

VULCANIZING GUM AND PENNY PATCHES

Physical Properties:		Rheometer @ 300°F (149°C):	
15' motor @ 280°F (138°C):		30' motor, 100 range, 3° arc:	
Tensile:	3260 psi	Max. Torque:	41.40
300% Modulus:	780 psi	Min. Torque:	07.90
Elongation:	650%	Scorch T-2:	01.32
Hardness, Shore A:	50	T-80:	08.60
		T-90:	10.75

Shelf Life:

6 months if stored at 65°F (18°C) and avoiding direct sunlight
3 months if stored at "normal room temperatures" (Max. 80°F (27°C))

CHEMICALS

Cure Rates of Cements (Using X-tra Seal repair units):

Chemical Cure (Cold Cure): 72 - 96 hours @ 70°F (21°C)
Heat Cure: 20 minutes @ 300°F (149°C)

Two-Way Cure:

Chemical Cure: 36 - 48 hours @ 70°F (21°C) to 100°F (38°C)
Heat Cure: 20 minutes @ 300°F (149°C)

Shelf Life:

Cement and Bead Sealer:

24 months if stored at 65°F (18°C) and avoiding direct sunlight
18 months if stored at "normal room temperatures" (Max. 80°F (27°C))

Buffing Solution:

36 months if stored at 65°F (18°C) and avoiding direct sunlight
36 months if stored at "normal room temperatures" (Max. 80°F (27°C))

Inner Liner Sealer:

24 months if stored at 65°F (18°C) and avoiding direct sunlight
18 months if stored at "normal room temperatures" (Max. 80°F (27°C))

TIRE REPAIR LIMITATIONS

Puncture Repair

An injury in the tread (crown) area only (see diagram below) caused by a small, sharp object penetrating the innerliner of the tire. The injury can be a maximum of 1/4" (6mm) in passenger tires and 3/8" (10mm) in light and medium truck tires. (See page 112 for puncture repair procedures.)

Spot Repair

A rubber only repair that penetrates less than 25% of the body plies. An area to be spot repaired must not exhibit any cord damage except in the case of bias ply tires which may have up to 25% of the cord plies injured.

Reinforcement Repair

An injury which penetrates between 25% and up to 75% of the body plies. A cord reinforced repair unit is required on the innerliner of the tire.

Section Repair

An injury that penetrates 75% or more of the body plies and exceeds the puncture repair limits. (See page 115 for section repair procedures.)

Section Repair Limits for Radial Tires

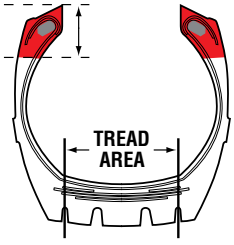
TIRE SIZE	CROWN LIMITS	SIDEWALL LIMITS
Passenger		
P195R and smaller	1/2" (13mm)	3/8" (9mm) x 2" (50mm) or
		3/4" (19mm) x 1 1/2" (38mm)
P205R and larger	3/4" (19mm)	3/8" (9mm) x 2 3/4" (70mm) or
		3/4" (19mm) x 2" (50mm)
Light Truck		
	1" (25mm)	3/8" (9mm) x 3 1/8" (80mm) or
		1" (25mm) x 2" (50mm)
Truck		
8.25R - 14.00R	1 1/2" (38mm)	3/4" (19mm) x 5 1/8" (130mm) or
		1 1/4" (32mm) x 4" (102mm) or
		1 1/2" (38mm) x 3 1/8" (80mm)

* Wider repairs must be shorter in length

Section Repair Limits for Bias Ply Tires

PLY RATING	CROWN LIMITS	SIDEWALL LIMITS
Highway Service Drive or Trailer Applications		
Up to 8	1" (25mm)	1" (25mm)
10-14	2" (51mm)	1" (25mm)
16-20	2 1/2" (64mm)	1 1/4" (32mm)
Local Service Trailer or P&D Applications		
Up to 8	2" (51mm)	1 1/2" (38mm)
10-14	3" (76mm)	1 1/2" (38mm)
16-20	3 1/2" (89mm)	1 3/4" (45mm)

Non-Repairable Bead Area+



Measure from toe of bead down innerliner.

TIRE TYPE (BIAS OR RADIAL)	TIRE CROSS SECTION	NON-REPAIRABLE BEAD AREA*
Passenger	all	1 1/2" (38mm)
Light and Medium Truck Tube Type	Up to 7.5	3" (76mm)
	8.25 and above	3 1/2" (89mm)
Light and Medium Truck Tubeless	Up to 8.8	3" (76mm)
	9 and above	3 1/2" (89mm)

*Rubber and spot repair only in this area. Repair to body ply and/or bead structure in this area is not permitted.

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INDUSTRY STANDARD PUNCTURE REPAIR PROCEDURES

Non-Repairable Conditions+

Prior to repairing any tire, a careful inspection should be conducted using a grazing light method on both the inside and outside of the tire. According to the "Industry Standards for Tire Repairing", any tire exhibiting the following conditions should not be accepted for repair.

EXTERNAL

- Exposed cords beyond repairable limits
- Separations beyond repairable limits
- Broken belts
- Excessive oxidation (weather checking) extending to the body plies
- Damage which exceeds the size of a repairable injury or requires the repairs to overlap in radial tires or that are in the same quadrant in bias tires
- Broken or kinked beads
- Damaged bead exposing bead wire
- Injuries beyond the repairable limits
- Tire with less than 2/32" (2mm) nonskid remaining unless retreading is planned
- Previously installed repairs found to be defective and unrepairable
- Radial tires with rust or corrosion beyond repairable limits

INTERNAL

- Injuries beyond repairable limits
- Porous or loose liners
- Open liner splices beyond repairable limits
- Loose cords on the inside ply or evidence of having been run underinflated or overloaded
- Injury to the ply cord beyond repairable limits

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TIRE INSPECTION

EXTERNAL EXAMINATION

1. Carefully remove the wheel from the vehicle following industry recommended practices.
2. Inflate the tire to the manufacturer's recommended operating pressure (found on the sidewall of the tire).
3. Immerse the tire in a test tank to find the damaging leak. In some cases there may be a high pressure leak (one which has its greatest effect when under the full load of the vehicle) and it may be necessary to use leak detector to find the damaging object. Be certain to inspect for the possibility of more than one leak.

4. Review the Non-Repairable External Conditions above. If the tire has been determined to be repairable, mark the location of the injury on the outside of the tire using a tire marking crayon. If you have any doubts as to the repairability of the tire, do not proceed with the repair.

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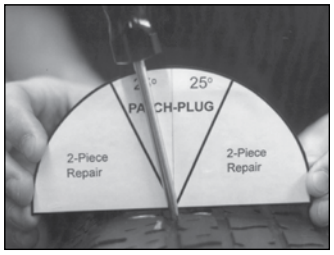
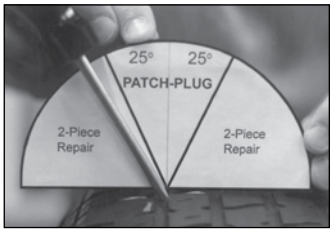
INTERNAL EXAMINATION

5. Demount the tire from the wheel and place it on the floor in front of you.
6. Review the Non-Repairable Internal Conditions above. If the tire has been determined to be repairable, mark the location of the injury on the inside of the tire using a tire marking crayon.
7. Remove the object causing the injury and carefully probe the injury to make sure it is 1/4" or less in diameter in passenger tires and 3/8" or less in light and medium truck tires. If these limits are exceeded, take the tire to a full service repair facility to be considered for section repair.
8. Using a probe, push it into the injury from the outside of the tire until the probe extends 1/4" through the innerliner. Be careful not to create a new hole.
9. With the probe extending through the injury channel and the injury at the 12 o'clock position, place the Patch-Plug Gauge across the tread next to the probe, with the center of the gauge placed at the center point of the injury.
10. If the shaft of the probe is within the gray area (25° or less), a one-piece repair may be used (patch-plug combination unit).
11. If the shaft of the probe is within the red area (greater than 25°), a two-piece repair is required (separate repair unit and insert).
12. Place the tire on a spreader with the injury in the 4 or 8 o'clock position. Do NOT spread the beads too far, as this will distort the final repair.

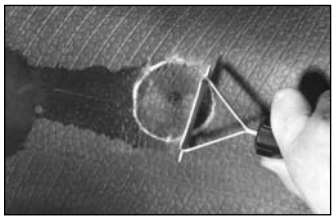




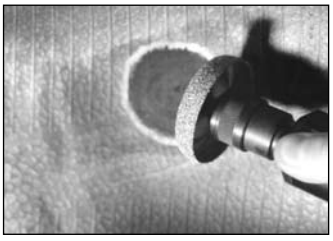
ONE-PIECE REPAIR PROCEDURES

INJURY PREPARATION

13. Once the size of the injury has been determined, select the appropriate repair material based on the size of the injury and the type of tire being repaired. Center the patch head over the injury on the inside of the tire and outline an area 1/4" larger than the patch to define the repair area.

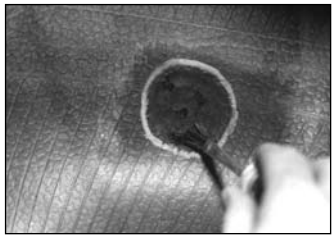


14. Using pre-buff rubber cleaner and an innerliner scraper, thoroughly clean the outlined area, removing all mold lubricants, dirt, and debris.



15. Using a low speed buffer operating at no more than 5,000 rpm, buff the outlined area to an even, velvety RMA #1 textured finish (see below). Be careful not to buff through the innerliner and expose the cord body plies of the tire.

16. Using a 500 rpm low speed air drill and the appropriate carbide cutter, clear and prepare the injury channel by drilling it 3 times from the inside of the tire and then 3 times from the outside of the tire. This will clear away any damaged cables and prepares the injury channel to receive the vulcanizing insert (stem portion of the repair unit). Vacuum away any buffing debris.



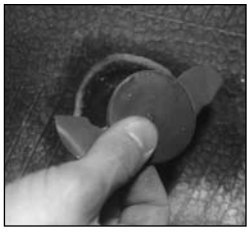
17. Using a cement dipped probe, coat the wall of the injury channel with chemical vulcanizing cement. Using the brush applicator, apply cement to the prepared area of the innerliner in a stippling motion being careful not to puddle the cement. Allow the cement to dry thoroughly before installing the repair unit.

REPAIR UNIT APPLICATION

18. Relax the tire beads to their normal position. Remove the protective covering from the patch head and stem portions of the repair unit being careful not to touch the gum surfaces of the patch or stem.

19. Place a drop of cement at the leading edge of the stem portion of the repair unit being careful not to puddle. This lubricates the repair unit as it is pulled through the injury channel.

20. Insert the lead wire into the injury channel from the inside of the tire and pull it from the outside of the tire with a pair of pliers. Pull the repair unit steadily from the outside of the tire until the patch head is seated. Do not dimple the patch head by pulling too far.



21. Using a roller stitcher, stitch the patch down firmly to the innerliner by working from the center outward making sure to remove all trapped air.

22. Keeping the stem in a relaxed position, cut the stem about 1/8" above the tread surface of the tire. Do not pull the stem while cutting.

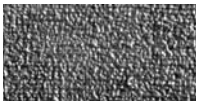
FINISHING THE REPAIR

23. Remount and inflate the tire following industry recommended procedures.

24. Carefully inspect the repair for leaks and the tire for additional leaks or damage using the tire manufacturer or RMA guidelines. If all inspection criteria are met and no leaks are detected, the tire is ready to be put back into service.

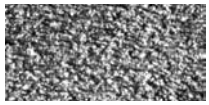
RMA Buffing Textures

RMA #1



RMA #2

RMA #3



RMA #4

RMA #5

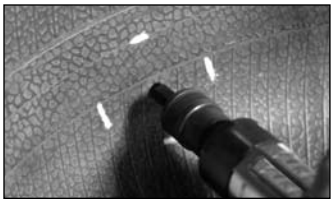
RMA #6

TWO-PIECE REPAIR PROCEDURES

INJURY PREPARATION

13. Once the size of the injury has been determined, select the appropriate repair material based on the size of the injury and the type of tire being repaired.

14. Using a 500 rpm low speed air drill and the appropriate carbide cutter, clear and prepare the injury channel by drilling it 3 times from the inside of the tire and then 3 times from the outside of the tire. This will clear away any damaged cables and prepares the injury channel to receive the vulcanizing insert. Vacuum away any buffing debris.

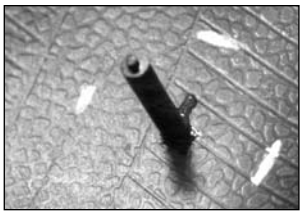


15. Using a cement dipped probe, coat the wall of the injury channel with chemical vulcanizing cement and allow the cement to dry thoroughly.

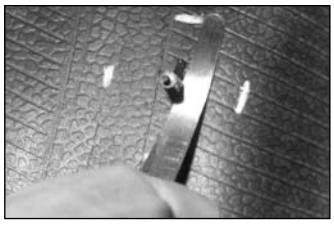
INSTALLING THE VULCANIZING INSERT

16. Place a drop of cement on the leading edge of the lead wire insert.

17. Insert the lead-wire into the injury channel from the inside of the tire and pull it from the outside of the tire with a pair of pliers until the body of the insert is centered in the injury channel.

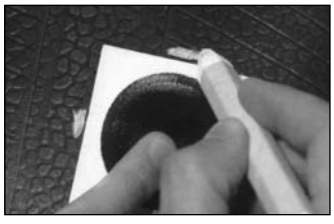


18. Using a flexible skiving knife, cut the insert just above the innerliner of the tire.

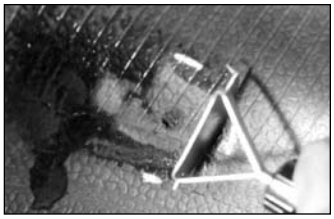


INSTALLING THE REPAIR UNIT

19. Center the repair unit over the injury on the inside of the tire and outline an area 1/4" larger than the patch to define the repair area.



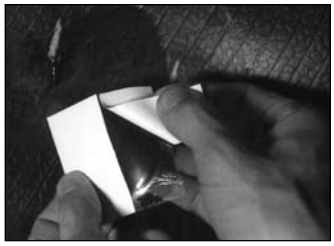
20. Using pre-buff rubber cleaner and an innerliner scraper, thoroughly clean the outlined area, removing all mold lubricants, dirt, and debris.



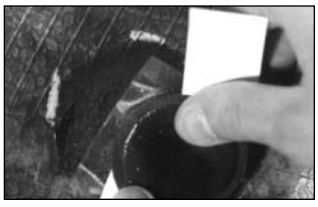
21. Using a low speed buffer at no more than 5,000 rpm, buff the outlined area to an even, velvety RMA #1 textured finish (see bottom of page 113). Be careful not to buff through the innerliner and expose the cord body plies of the tire. Vacuum away any buffing debris.

22. Using the brush applicator in a stippling motion, apply chemical vulcanizing cement to the prepared area of the innerliner being careful not to puddle the cement. Allow the cement to dry thoroughly before installing the repair unit.

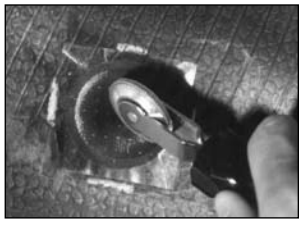
23. Relax the tire beads to their normal position. Remove the protective backing from the repair unit being careful not to touch the gum surface.



24. Place it on the innerliner centered over the insert.



25. Using a roller stitcher, stitch the repair unit down firmly to the tire innerliner by working from the center outward making sure to remove all trapped air.



FINISHING THE REPAIR

26. Keeping the lead-wire insert in a relaxed position, cut the stem about 1/8" above the tread surface of the tire. Do not pull the stem while cutting.

27. Remount and inflate the tire following industry recommended procedures.

28. Carefully inspect the repair for leaks and the tire for additional leaks or damage using the tire manufacturer or RMA guidelines. If all inspection criteria are met and no leaks are detected, the tire is ready to be put back into service.

INDUSTRY STANDARD SECTION REPAIR PROCEDURES

INITIAL TIRE INSPECTION

1. An injury that penetrates 75% or more of the body plies and exceeds puncture repair limits requires a section repair. DO NOT attempt to repair this type of damage with nail hole repair units. Demount the tire from the wheel and locate the injury.
2. Remove any injuring object and make a careful visual inspection to determine the size, angle, and extent of the injury. Use a probing awl to probe for unseen internal damage. Determine whether the injury is within repairable limits. (See page 111 for section repair limits and page 112 for non-repairable conditions.)

FILLING THE INJURY AREA

PREPARING THE OUTSIDE OF THE TIRE

3. Using a low speed buffer and a carbide cutter, begin removing all damaged rubber, both inside and outside the tire, and steel cord in the injury area. All broken cords and loose strands of cable must be removed leaving only solid, undamaged rubber at the sides of the opening. If in the tread area, use an appropriate buffing wheel to buff at a 45˚ angle down to the cord and 90˚ through the cord.
4. Using a high speed buffer with a pencil stone, polish the exposed cord ends being careful not to scorch the rubber. Clean away any rubber or steel dust left behind both inside and outside the tire. Using a low speed buffer and an appropriate buffing wheel, round over the edges of the prepared area.

PREPARING THE INSIDE OF THE TIRE

5. Clean the inner liner around the injury area with a pre-buff chemical rubber cleaner. Using an inner liner scraper, remove dirt, mold lubricants, and other contaminants.
6. Using a low speed buffer with an appropriate buffing wheel, buff an area about 1" larger than the injury area to an RMA #1 texture (see bottom of page 113). As on the other side, round over the edges of the prepared area. Use a vacuum cleaner to remove buffing dust.
7. Measure the thickness of the tire at the injury area and note this measurement for future reference. Also measure and record the dimensions of the repair area.
8. Spread a generous coating of Black Retreader's Cement over the prepared injury area both inside and outside the tire.

Filling the Injury

9. Secure a backing plate on the inner liner. Fill the injury area with an appropriate filling material.Stitch and pack material so as to avoid creating any gaps or air pockets, working from the center outward, making sure to stitch rubber over the edges. Filling material should be about 1/8" (3mm) above the outside of the tire when finished packing. Remove the backing plate and cure the filling material following manufacturer's cure time recommendations.

REPAIR UNIT APPLICATION

10. Select the appropriate repair unit and center it over the injury on the inner liner. Mark an area about 1/2" (13mm) larger than the selected repair unit. Clean the selected area completely with a pre-buff rubber cleaner. Using an inner liner scraper, remove all dirt, mold lubricants, and other contaminants.
11. Using a low speed buffer and an appropriate buffing wheel, buff the selected area to an RMA #1 texture (see bottom of page 113). Remove all buffing dust with a vacuum.
12. Using a chemical vulcanizing cement recommended by the repair manufacturer, apply a thin, even coating to the prepared and buffed surface. Allow cement to dry thoroughly!
13. While beads are in a relaxed position, remove backing from repair unit and center the repair over the injury. Stitch repair down thoroughly with a stitching tool, working from the center out, removing all trapped air and making sure to stitch the edges.
14. Once the repair unit has been stitched down, apply a generous coating of Inner Liner Sealer to the edges of the repair unit.

FINISHING THE REPAIR

15. Using a low speed buffer and an appropriate buffing wheel, lightly buff the outside of the repaired area until the rubber is flush with the surrounding area, presenting a smooth finished appearance.
16. For tread area repairs, use a regroover to replace original tread design. For sidewall repairs, apply a Section ID Patch on the outside of the tire next to the repaired area to indicate the location of the section repair.

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GLOSSARY OF TPMS TERMS

ABS – Anti-lock braking system.

Activation Tool – Electronic tool used to activate, trigger or wake-up a TPMS sensor once it has entered the Sleep Mode. Typically, the tool sends a 125kHz LF signal to the TPMS sensor forcing it to wake-up and transmit data. Activation tools may be needed to aid in the relearn processes.

Banded Sensor – Sensor mounted in the drop center of the wheel using a metal band. The sensor is typically mounted 180° from the valve stem. The sensor is attached to the metal band using a cradle and secured to the cradle with a plastic clip. Ford is the only vehicle manufacturer that uses banded sensors, as original equipment, on their vehicles.

Clamp-in Style Sensor – Sensor mounted to the wheel through the rim hole using a special sealing nut to secure it into the wheel. These sensors can usually be identified by their aluminum valve stem.

Cradle – The carrier that holds the banded sensor to the band.

Continuous Wave Sensors – Sensors designed to trigger when they are exposed to a continuous electronic signal for 4-7 seconds.

Direct TPMS – System that uses wheel mounted sensors or transmitters to transmit information to the vehicles ECU. This system meets current federal regulations.

Drive Mode – When a vehicle reaches a certain velocity, for a specified period, the sensor enters drive mode and transmits data at regular intervals.

ECU – Electronic Control Unit.

FCC – Federal Communications Commission

FMVSS 138 – The Federal Motor Vehicle Safety Standard adopted by the NHTSA, as required by legislation known as the TREAD Act, mandating that TPMS be installed on all new vehicles having a GVWR of 10.000 lbs. or less except motorcycles and those vehicles with dual wheels on an axle.

Gross Vehicle Weight (GVW) – The total weight of a loaded vehicle including the chassis, body and payload.

ID – Identification

Indirect TPMS – System based on the use of a vehicles ABS. This type of system does not require the use of sensors or transmitters. Indirect systems were once popular, but those systems did not meet current federal regulations.

Learn Mode – Mode in which the vehicles receiver stores the sensors ID, within its memory, for future identification purposes.

LF – Low Frequency (Trigger Frequency) 125kHz

Magnetically Triggered Sensors – Sensor designed to trigger when exposed to a powerful magnetic wave

NHTSA – National Highway Traffic Safety Administration. The U.S. federal agency that develops and administers educational, engineering and enforcement programs for safe vehicle use and cost-effective highway travel.

Normal Mode – Also referred to a Park Mode, is the state the TPMS sensor is in during normal driving operations.

OBDII – On-Board Diagnostic systems were introduced as an electronic means to control engine functions and diagnose engine problems. OBDII, introduced in the mid-90's, provides almost complete engine control and also monitors parts of the chassis, body and accessory devices, as well as the diagnostic control network of the car.

OEM – Original Equipment Manufacturer.

Off Mode – Also referred to as Ship Mode is the TPMS sensor state where no transmission occurs and pressure sampling occurs once every 30 seconds. Mainly used for shipment and storage, sensors will remain in this condition until activated into another mode. Sensors being shipped from overseas are often shipped in Off Mode because the FCC will not allow any electronic devices to transmit any type of signal that may interfere with radio air waves. It is important to note that not all sensors are shipped in this mode.

Park Mode – Also referred to as Normal Mode, is the state the TPMS sensor is in during normal driving operations.

Pulse Modulated Sensors – Sensors designed to trigger when they are exposed to a 125kHz signal with a specific and exclusive OEM electronic pattern.

Protocol – The specific internal programming that runs the TPMS sensor.

Receiver – Device that decodes the TPMS sensor data and converts it into information used by the vehicles onboard computer system.

Relearn – Many TPMS systems require retraining each time the tires/wheel are rotated or a sensor is replaced. Retraining is necessary for the system to learn the sensor(s) new postion(s). A relearn procedure may need to be followed in order to retrain the system. Relearn procedures differ by vehicle makes and are sometimes found in the vehicles Owner's Manual. In those instances where the relearn procedure is not found in the Owner's Manual a TPMS service guide may need to be referenced to find the relearn procedure.

RF – Radio Frequency (Transmitted Frequency)

Service Kit – Kit of components needed to properly service TPMS sensors. This kit can include replacement valves, cores, caps, grommets, locking nuts, and washers. The OEM recommends replacing the EPDM grommet, valve cap, valve core and locking nut every time a TPMS sensor is removed from the wheel or the wheel is serviced.

Ship Mode – Also referred to as *Off Mode* is the TPMS sensor state where no transmission occurs and pressure sampling occurs once every 30 seconds. Mainly used for shipment and storage, sensors will remain in this condition until activated into another mode. Sensors being shipped from overseas are often shipped in *Off Mode* because the FCC will not allow any electronic devices to transmit any type of signal that may interfere with radio air waves. It is important to note that not all sensors are shipped in this mode.

Sleep Mode – TPMS sensor state that occurs in between the time the sensor transmits and measures data.

Snap-In Style Sensor – Sensor mounted to the wheel through the rim hole using a special rubber snap-in valve that is attached to the sensor module using a special T-10 TORX head screw. To identify a Snap-in TPMS sensor, look for a long valve cap or an extended brass shoulder.

Test Mode – Sometimes referred to as *Factory Test Mode*, is the state in which the sensor transmits at the most frequent transmission rate possible. This mode is used by vehicle assembly plant tests.

TPM – Tire Pressure Monitoring.

TPMS Sensor – Also referred to as sensors, are wheel based electronic sensors used to transmit information/data in TPMS systems.

TPMS – Tire Pressure Monitoring System. A warning system that notifies the driver when a tire is significantly under-inflated.

TPMS Grommet – Many stem mounted sensors use a special rubber grommet for sealing. The OEM recommends replacing the grommet whenever the sensor is removed from the wheel. The rubber grommet provides the air seal in the valve stem opening, and a new one should be used to ensure a fresh seal after each service.

TPMS Nut – Many TPMS sensors are attached to the wheel using a specially designed sealing nut. The OEM recommends replacing these nuts whenever it is removed. These nuts are either 11mm or 12mm. Each manufacture has its own recommended torque specification for the TPMS nuts.

TPMS Valve Cap – TPMS sensors with an aluminum valve stem require a specially designed sealing cap. Sensors with an aluminum stem cannot use a standard (non-TPMS) valve cap. These special valve caps are designed for use with TPMS sensors and protect against the corrosion that forms when dissimilar metals come in contact.

TPMS Valve Core – Many TPMS sensors have an aluminum valve stem with a specially designed valve core. The OEM recommends replacing this valve core whenever it is removed. Sensors with an aluminum valve stem cannot use a standard brass valve core; instead, they require a special nickel-plated valve core to protect against the corrosion that forms when dissimilar metals come in contact. The Tire and Rim Association (TRA) recommends a torque specification of 2 – 5 inch pounds for TR C1 valve cores. Sensors with a rubber valve stem may use a standard brass valve core for replacement.

TRA – Tire and Rim Association. The standardizing body for the tire, rim, valve and allied parts industry for the United States.

TREAD Act – Transportation Recall Enforcement Accountability Documentation Act. The law that mandates, beginning September 1, 2007, all new vehicles sold in the U.S. under a GVW of 10,000 lbs., excluding motorcycles and light duty trucks with dual wheels on an axle, are required to be equipped with a tire pressure monitoring system (TPMS) to warn drivers when one or more of a vehicles tires are under-inflated by 25% or more.

TSS – Tire Safety System

UHF – Ultra High Frequency 315MHz and 433.92 (sometimes referred to as 434) MHz.

GLOSSARY OF TIRE REPAIR TERMS

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Accelerator – A chemical which affects the rate of vulcanization of the rubber compounds.

Air Injection – An inspection method using a high pressure air probe to detect separation.

Awl – A pointed round tool used to probe nail holes and other injuries.

Backing – A removable protective material used on the application side of retread rubber and repair materials to preserve cleanliness and tackiness.

Band Ply – The inner cord ply of a tire.

Bead – That anchoring part of the tire which is shaped to fit the rim. Made of high tensile steel wires wrapped and reinforced by the plies.

Bead Centering Plate – An alignment device used to reduce tire diameter and center the casing in the retread matrix.

Bead to Bead Measurement – The distance from the heel of one bead straight up at 90° to the bead over the crown and down the other side to a position on the heel of the other bead directly opposite the starting point.

Belt Edge Separation – Separation adjacent to any edge of the tire.

Break – A crack extending into or through the fabric. An impact break is usually in the shape of an X or star and can be seen from the inside of the tire. A flex or circumferential break runs parallel to the beads.

Breaker Strip – A band or strip of rubber coated bias cut tire cord placed circumferentially around the tire between the last ply of casing fabric and tread. Sometimes called the impact or shock ply.

Broken Belts or Plies – A break limited to one or more belts or plies of the tire.

Buckled Tread – Tire distortion caused by improper molding, evidenced by wrinkling on the inside of the casing.

Buff Contour – The specified shape of a buffed tire.

Buff Line – The dividing line in the cross section of a tire between the buffed surface of the original tire and the new retread rubber.

Buffed Surface – The specially prepared surface of a tire casing to provide proper adhesion between the previously vulcanized casing and the new rubber.

Buffer – A machine used to rasp the old tread from the tire.

Buffing Template – A machined device of a specified shape used to obtain the required buffed contour.

Builder – A machine used to apply tread rubber to a casing.

Build-Up – The application of retread or repair rubber.

Buzz-Outs – (See Skiving)

Casing – The tire structure, excepting tread and sidewall rubber.

Cement – An adhesive rubber compound dissolved in solvent used to provide building tack and cured adhesion. May be brushed or sprayed on the buffed surface.

Centerline – An inked line or indentation applied during extrusion to the center of the tread rubber to aid in positioning the tread.

Chafer Fabric – The layer of fabric covering the bead in the area between the bead and rim.

Channeling – Voids in the shoulder area between the tread and buffed surface.

Check Valve – A one way valve used to prevent pressure loss.

Chemical Cleaning – A rapid drying rubber solvent for removing mold lubricant, dirt, and other foreign material before mechanical buffing.

Chemical Cure – Vulcanization at room temperature activated by chemical agents without the application of heat from an outside source.

Chemical Leak Detector – A liquid capable of detecting air seepage not discernible by visual inspection.

Chemical Vulcanizing Cement (Chemical Cement) – Cement which when used with compatible materials will produce a chemical cure.

Chunking – Separation of tread from the casing in particles that may range from a very small size to several square inches in area.

Cords – The strands forming the plies in a tire.

Corrosion – Degradation of steel reinforcing members.

Cross Section – The maximum width of the tire.

Crown Width – The distance shoulder to shoulder measured along the buffed contour.

Cure Time – The time required at a reference temperature for a compound to reach optimum physical properties.

Curing Rim – The rim used to support the tire and keep the curing tube in place while curing.

Curing Tube – Special, heavy duty tube placed within the tire while curing.

Cushion Gum – A tacky rubber compound used for adhesion, undertread repair, and build-up. (Also See Precured Tread Cushion Gum).

Cut-off Rib – An indentation molded into a retreaded tire to produce a sharp ending at the edge of the new retread rubber.

Debagger – A device for inserting and removing curing tubes.

Delugger – A machine used to cut the lugs from tires prior to buffing.

Detreader – A machine that delugs and buffs a used tire.

Die Size – A coded description of the dimensions of tread rubber.

Extruder – A machine that shapes a rubber compound, by the process of extruding, into a usable form (i.e. strip or die size).

Fabric Fatigue – Fabric degradation and resultant tire cord breakdown due to repeated flexing.

Filler Strip – A free flowing rubber used under the tread when added thickness is needed.

Flow Stop – An indentation molded into a retreaded tire to produce a sharp ending at the edge of the new retread rubber.

Full Capping – Application of new rubber to the tread area and some distance down the sidewall of a used tire. Gives the appearance of a new tire.

Groove – Space between two adjacent tread ribs.

Groove Cracking – Cracking which occurs at the bottom of a tread groove.

Heat Booster – An electric heating unit, which, when placed between the airbag and the casing of the tire, provides internal heat and aids in the curing of the tire.

Kettle Cure – Cure method employing steam and air for the heat and pressure required in vulcanizing.

Liner – The tubeless tire inner surface used to retain the inflation media.

Lug Tearing - Rupture of the lug, sometimes resulting in removal, resulting from violent operation or mechanical interference.

Mandrel – A curved support inserted in a tire to prevent the casing from collapsing while building a repair.

Matrix – Aluminum or steel rings or segments which form the cavity in which the tire is actually cured and from which the tread design is formed.

Matrix Skirt – The sidewall flange of the matrix. In a short skirt matrix the flange extends from the shoulder to the flow stop and in a long skirt matrix it extends below the flow stop.

Moisture Blows – Ply separations caused by the presence of moisture in the carcass which, when subjected to heat, becomes steam and expands.

Mold – Equipment in which the new tread is cured to the worn tire. Mold includes the steam chamber, matrix, and adjusting devices.

Mold Lubricant – Material used as a mold release to facilitate removal of the tire from the mold after curing.

Non-Fill – Failure of the tread rubber to properly fill the matrix during cure, resulting in imperfectly formed tread elements and rounded lug edges.

Open Splice – A retreaded tire defect caused by failure of the rubber to knit together properly at the tread splice during cure.

Optimum Cure – That state of cure at which the rubber compound exhibits the most satisfactory physical properties. Usually expressed in minutes curing time at a specified temperature.

Orbitread Machine – A combined tuber-builder that applies tread rubber in ribbon form, and in a spiral configuration.

Overall Diameter (O.D.) – A measurement used to size a buffed tire. Usually made on an inflated tire using calipers or a diameter type rule.

Overcure – Vulcanizing longer than necessary. Can result in the deterioration of certain physical properties.

Overflow – Spew-out of tread compound at the mold parting line or at the edge of the matrix skirt which should be trimmed or buffed off the finished product.

Padding Gum – Heat resistant rubber used under tread rubber to build up its size for mold fit.

Peaking – A condition, usually in the cushion, resulting from local material starvation and excessive flow from adjacent areas.

Ply – A layer of rubber coated parallel cords.

Ply Separation – A parting of rubber compound between adjacent plies.

Potentiometer – A milivoltmeter calibrated to sense temperature in a desired range. (Usually direct reading.)

Precured Tread – Tread which is vulcanized with the tread configuration molded into it prior to being placed on the buffed casing.

Precured Tread Cushion Gum – A tacky rubber compound used to bond the precured tread to the buffed surface.

Press (Loading) – A machine designed to open and close a matrix, load and eject retreaded tires.

Press Plate – Ring shaped plates in molds which may be adjusted to alter the cross section of tires.

Pyrometer – An instrument to measure temperatures – usually by the generation of electric current by a thermocouple when acted on by direct heat. Commonly used to measure surface mold temperatures or (if a penetrating needle is used) tread rubber temperatures.

Rasp – A tool with raised points forming the cutting prominences, used for roughening rubber surfaces.

Radial Cracking – Cracking, usually in or near the rib area, resulting from under-inflation (or ozone exposure).

Reducing Valve – Pressure regulating device used for controlling steam or air pressure at desired level.

Regrooving (Recutting) – The cutting of a tread design into tread rubber where a design does not already exist or the cutting into an existing tread design to a depth greater than that provided by the new tire manufacturer or retreader.

Reinforcement – Any material, usually rubber and fabric, vulcanized to the tire to add strength to the cord body at an injury.

Reinforcement Repair – Repairs made to the casing when an injury has extended through more than 25% but less than 75% of the tire body requiring both hole-filling material and reinforcing patches.

Relugging – A method of retreading big type design tires using hand build-up and kettle cure.

Repair Gum – Material used for filling voids, or covering reinforcing material in a tire repair.

Repaired Tire – Any tire with punctures, cuts or other types of injuries that have been reconditioned as required to provide additional safe service life.

Repair Patch – The reinforcing material used to seal and/or reinforce the injury in a tire.

Repair Plug – The material that fills the cavity of an injury in a tire.

Retread Tire – A casing to which tread rubber has been affixed to extend the usable life of the tire.

Reversion – Excessive heating of a cured rubber compound leading to deterioration of its physical properties.

Rim – A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

Rim Diameter – The diameter (conventionalized) of the rim corresponding to the tire bead heel.

Rim Flange – That part of the rim that supports the bead heel and resists lateral internal pressure.

Rust – Advanced stage of corrosion (See Corrosion).

Scorching of Rubber – Excessive heat of processing equipment which detrimentally changes the surface of the rubber.

Section Repair – Repairs, other than nail-hole type, made to the casing when an injury has extended through 75% or more of the actual plies, or completely through the casing in the tread or sidewall areas.

Sectional Bag (Air-Steam) – A rubberized fabric bag made in 1/4, 1/5, or 1/6 circle with valves at both ends. When inflated inside a tire in a sectional mold, it applies pressure in the vicinity of the injury.

Self Vulcanization – (See Chemical Cure).

Separation – A loosened area within the tire.

Set-up – Premature vulcanization of a rubber compound during processing or storage.

Shaping – Buffing the casing to shape it to properly fit the size and contour of the matrix cavity.

Shelf-Life – Refers to the accepted length of time that a perishable product may remain in stock before serious deterioration takes place.

Shoulder Radius – Small radius, (generally) that joins the primary tread radius to the shoulder contour.

Sidewall – That portion of a tire between the tread and bead.

Sipe – Any of the small often hooked shaped or bracket shaped grooves in the tread of an automobile tire for providing extra traction and preventing skids.

Size Factor – The size factor of a tire is the sum of its section width on its measuring rim and its outer diameter.

Sizing – Measuring the tire casing to determine proper matrix fit. Usually a combination of bead to bead or cross section and tire circumference is used.

Skid Depth (Tread Depth) – The distance measured near the centerline of the tire, from the base of the tread design to the top of the tread.

Skiving – The removal of damaged material prior to making a repair.

Slab Stock – Tread compound cut from a rubber mill in wide, thick strips.

Spacer Ring – A ring inserted between two halves of a matrix which enables the matrix to handle tires of the same diameter, but with greater tread widths and larger cross sections.

Special Mileage Tire – A tire manufactured with an extra layer of rubber between the cord body and the original tread design, which extra layer is designed for the purpose of recutting and regrooving, and which is specifically labeled as a special mileage commercial tire.

Splice-Butt – A 90° angle cut across the tread crown and through the gauge which permits full matching of the tread ends when they meet.

Splice-Bevel – A continuous and approximate 45° angle cut through the gauge which allows the tread ends to diagonally overlap themselves.

Spot Repair – The replacement of rubber in an injury that penetrates less than 25% of the body plies.

Spotter – A heat vulcanizing unit used in spot repairs, with a metal curing plate for either (or both) outside or inside tire surface.

Spreader – A multi-arm device that spreads a tire at the bead area.

Standard Rim – A rim that has been calibrated and found to meet the precise measurements specified by the Tire and Rim Association, Inc. or, where applicable, by European Tire and Rim Association.

Steam Trap – A drainable end of the steam supply line low pressure trap which helps avoid low pressure areas in the steam piping.

Stitching – A hard rolling method used to both remove trapped air and improve rubber contact for better adhesion.

Stop Ring – An indentation molded into a retreaded tire to produce a sharp ending at the edge of the new retread rubber.

Strip Rubber – Tread rubber in strip form most commonly used in cold feed extruders.

Stripping Stock – A rubber stock used to extend the wing of tread rubber.

Tack – A term used to describe tackiness.

Template (Buffing Template) – A pre-cut pattern, usually metal, used to determine the contour of a buffed tire in order for the tire to be compatible with the matrix.

Thermocouple Test – A heat study which utilizes special temperature wires and determines temperatures received at both the surface and base of the retread.

Tire Paint – A black paint, compatible to tire bodies, used to enhance the appearance of a tire.

Toe – The part of the bead which faces the inside portion of the tire.

Top Cap (Top Treading) – A retread which covers the crown, or top, of a tire.

Tread – That portion of a tire that comes in contact with the road.

Tread Depth – The distance, measured near the centerline of the tire, from the base of the tread design to the top of the tread.

Tread Design – The non-skid pattern (design) on the tread portion of the tire.

Tread Rib – A tread section running circumferentially around a tire.

Tread Gum – A rubber compound, used primarily to build up the tread when making a repair.

Tread Radius – A measure of tread surface curvature from shoulder to shoulder.

Tread Roller – A roller, either manual or power, used to help apply the tread rubber, remove trapped air and obtain adhesion.

Tread Rubber – Uncured rubber material which will replace the worn off tread portion of a tire.

Tread Separation – Pulling away of the tread from the tire casing.

Tread Tearing – A tearing away of a portion of the tread design due usually to an in-shop condition.

Tube Plate – A heated metal plate with a smooth surface and is used in making repairs.

Tulip Type Segmented Mold – Shoulder to shoulder segments which come together on a single cone.

Undercure – A condition which describes less than acceptable vulcanization, or curing.

Undertread – The rubber between the base of the tread and the tire body.

Valley Die – A tube die size configuration, which from a cross view, shows that either shoulder is higher than the center portion.

Vent Hole – Small circular holes in the tread area of the matrix which allows the rubber to flow and fill out the tread design.

Venting – The act of perforating a tire above the beads which allows the internal pressure in the cords to escape safely and without loss of tire air retention ability.

Voids – A situation whereby the tread rubber flow fills the tread design but does not completely fill the space between the tire casing and matrix, thereby leaving portions of the base in an unfilled condition.

Vulcanization – A chemical condition which takes place under appropriate curing time, temperature and pressure and develops usable (tire) characteristics.

Vulcanizing Cement – A cement containing additives to provide building tackiness and to cure under heat.

Weather Checking – A visual sidewall condition which appears as cracking of the rubber.

Wicking – A capillary act of air escapement from the tire casing through the use of a piece of cord.

WSW Protective Paint – A special and washable paint, usually colored, used to protect the white sidewall from excess dirt, stains or blemishes while the tire is in inventory.

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